

The JOURNAL

of the Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOLUME 41

OCTOBER, 1942

NUMBER 10

President's Address*

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Ann Arbor, Michigan

One year ago as we met in this room, war clouds were appearing on our horizon, but a peace-loving American public still believed that our country would not become involved in a foreign conflict. While diplomats in Washington were engaged in conversations, Japan struck without warning, and over night the scene changed.

Today we find the whole world a vast, potential battleground. Casualties, formerly among the fighting forces only, are now being counted by the thousands among the civil populations of European and Asiatic cities, even though men, women and children hide underground like prairie dogs. Our protective isolation is gone. Distance is erased by fast flying birds-of-war which come from far distant places to swoop down upon factories, homes, churches and hospitals, destroying within a few minutes the handiwork of man created through the ages. Hostile craft appear on both of our sea coasts. Submarines rise from the deep and sink our vessels without warning. Our men and women are being uprooted from all peacetime labors and directed into channels of war. Every phase of American life has been changed, for this is war—total war.

As physicians, our duty to our country is clear. If ten millions of our youngest, strongest and healthiest men are to march against our enemies; if they are to fight in all parts of the world, they will not march or fight alone. For every thousand soldiers in our army, six or seven able-bodied, well-trained physicians, equipped with

the knowledge of modern medicine and armed with every means for maintaining health, combating sickness and attending the injured, will accompany them. With an armamentarium for modern surgery—plasma and blood to combat shock; sera, vaccines, sulfonamides and other useful drugs to prevent infections—the salvage of human life will be the greatest recorded in history. Every red-blooded American physician will want to play his part in this conflict.

For every man at the front many must remain at home to maintain our services, to supply the instruments of war and to protect our home front. Civilian life with its numerous activities must go on. All young, physically fit physicians are needed for the military services and the older doctors of medicine who were planning on retirement, or slackening their medical activities, must take on an additional load of civilian practice. Many must discard their vacations, hobbies and those periods of well-deserved leisure which they have formerly enjoyed.

In addition to the practice of medicine, physicians must take their place as examiners for the selective service, as members of draft and local appeal boards, and in the emergency medical services in our civilian defense plants. Physicians are needed as teachers in the Red Cross activities; they are needed to replace young teachers called into military service from our medical schools. Our public health services must not be weakened, but rather strengthened, for shifting populations carry with them the hazards of epidemics. The death toll of war must be compensated for by higher birth rates and physicians who play such a vital part in reducing infant and maternal mortality must not slacken their efforts. Let the physicians who must serve their country in their present stations remember that it is as honorable to serve on the home front as on the battle front.

*Presented at the Seventy-Seventh Annual Meeting of the Michigan State Medical Society, Grand Rapids, September 23, 1942.

PRESIDENT'S ADDRESS—CUMMINGS

As members of the Michigan State Medical Society we have many obligations to our members in military service. During their absence we must serve their patients, giving the best medical care we are capable of rendering. We must maintain and extend scientific medicine and be prepared to impart our knowledge of new developments to our military members upon their return to civilian practice. Wars furnish the proving grounds for new medical and surgical procedures. The physicians at home must originate the newer methods but our brothers on the firing line must prove their value.

During the past fifteen years, the Michigan State Medical Society has developed and established two outstanding activities. Both have as their objective the wide distribution of the best type of medical and surgical care for all the people of our State.

The first of these activities—Postgraduate Medical Education—is acceptable to every physician in our Society. For years our medical leaders, our teachers and specialists have recognized the need of bringing to their patients and to medical students the newer and better methods of diagnosis and treatment. However, due to inertia, indifference and lack of time or opportunity, many physicians have rendered antiquated, outmoded, inferior medical services which were taught to them in their medical schools years before. Our Michigan plan of postgraduate medical education makes available and brings to the physician's doorstep every practical advancement in the science of medicine. The steady growth of this movement bespeaks the great value of the plan, not only to the physician but to the people of the state, whom they serve. Although this plan has been proclaimed the best in the country, it is far from its goal. Stability and progress must be assured and to this end your society has established a Foundation for the advancement of postgraduate medical education. Money from your treasury and from a well-known and beloved medical patron has been placed in a fund for this purpose. This is only a nest egg. It is anticipated that wise philanthropists will support this effort and that our own profession will show its appreciation by contributing to it.

The second notable achievement of our State Society is the development and inauguration of Michigan Medical Service. The fundamental idea behind this plan is to provide a means where-

by people in the low income group can through small, monthly deductible payments be assured that they will have good medical care for themselves and their families in the event of sickness. The original concept of this plan has never changed in the minds of those into whose hands you placed the gigantic task of developing and managing this service. Circumstances forced your officers to offer, first, protection against the cost of surgical procedures in hospitals. The great fear of the cost of surgical services is today uppermost in the minds of the low income group. However, these same groups of people are now asking for an extension of the plan to include medical conditions treated in hospitals. Gradually through experience and education it is to be expected that our original goal will be reached. Then our contract holders will be willing to set aside enough money to provide for all medical services.

I wish I might say that Michigan Medical Service is acceptable to all of our physicians, but this is not true. Groups have opposed the plan in its entirety; others have been critical of certain features of the plan. Both groups are sincere and honest and from their opposition has come a realization that this project is far from perfect—it has many faults. However, when in two years time one-half million of our citizens accept a medical security plan, when their representatives find it good, when employers believe it desirable for their employes, there must be some merit in the plan.

The House of Delegates of the Michigan State Medical Society is capable of reviewing all features of Michigan Medical Service. When the proponents and opponents of this plan sit down together and without heat apply constructive criticism and mature judgment to their deliberations, out of their discussions will emerge a Michigan Medical Service acceptable not only to the contract holders, labor and industry, but also to the group rendering the service—all Michigan physicians. The issue is upon us. Time is short. The world is changing rapidly. Let us demonstrate a spirit of cooperation among our members. Only in this way can we direct this splendid experiment through uncharted regions, fitting it to constantly changing conditions and finally making it worthy of an honorable profession.

Within a few days the Michigan State Medical Society will pass another milestone. With its

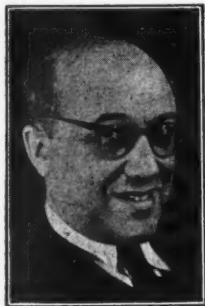
anks depleted of our younger men and our reserves reduced, many older men who have served this organization and have stepped off stage must again return to its activities, to serve on committees and fill the gaps left by those members in military service. To conserve tires, money and time, fewer and more centralized meetings can be held. Correspondence can replace committee meetings and a well-planned agenda will save much valuable time.

Today our civilization is in great peril. As in the past the medical profession is prepared to give its full strength to winning the war. A long tradition of unselfish service to mankind is inherent in our profession. We will serve our Country; we will march with our soldiers; we will bring every available means of healing and comfort to our fighting forces; we will conserve life and health; we will free our people of the fear of sickness and injury and from any lack of adequate medical care.

Infections of the Pharyngomaxillary Space*

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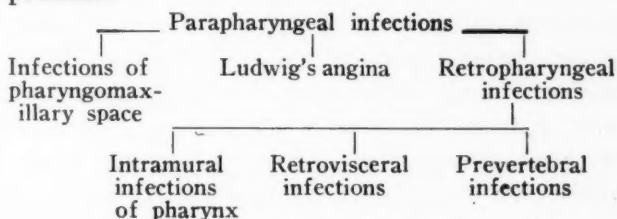
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■ THERE is a rather great confusion concerning the nomenclature of parapharyngeal infections. In order to reach a better understanding the writer considers it advisable to use the terms for what they actually mean. Consequently, the term "parapharyngeal infection" includes all infections adjacent to the pharynx, but it does not solely point to infections adjacent to the naso-

pharynx, the latter being called "infections of the pharyngomaxillary space." The same reasoning holds true concerning the term "peripharyngeal abscesses" which are not actually "peripharyngeal," inasmuch as neither the oropharynx nor the nasopharynx are closed tubes. Therefore, the writer classifies the "peripharyngeal abscesses" as "intramural abscesses of the pharynx."

Classification

The writer presents the following classification of parapharyngeal infections without considering that proposition as a final solution of the problem.



The following paper deals only with infections of the pharyngomaxillary space, while the other types of parapharyngeal infections are mentioned only occasionally.

Anatomy

The pharyngomaxillary space consists of an anterior and a posterior compartment. The anterior compartment lies mesial to the mandible, in its inferior portion mesial, and in its upper portion behind the internal pterygoid muscle. It extends up to the base of the skull and communicates with the dura and its sinuses along the pterygoid plexus, the third branch of the trigeminal nerve and the middle meningeal artery. Inferiorly it ends as a cul-de-sac at the stylomandibular ligament and at the upper pole of the submaxillary gland. The anterior compartment contains in its middle portion loose connective tissue, lymph channels, lymph glands, muscles having their insertion at the styloid process, the internal pterygoid muscle and the parotid gland; in its inferior portion, loose connective tissue, lymph channels, lymph glands and the glossopharyngeal nerve, and in its upper portion, loose connective tissue, lymph channels, lymph glands, both pterygoid muscles, the muscles of the soft palate, the veins of the pterygoid plexus, the internal maxillary artery with its branches (middle meningeal artery), the third branch of the trigeminus and the parotid gland.

The posterior compartment also extends to

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Read before the Southern Michigan Trilological Society, Kalamazoo, April 30, 1942.

the base of the skull and communicates with the dura and its sinuses along the internal carotid artery, the internal jugular vein and the posterior cranial nerves. Inferiorly it extends to the upper aperture of the chest. The chief contents of this compartment are in all levels essentially the same; loose connective tissue, the internal carotid artery, the internal jugular vein, the deep cervical glands, the cranial nerves and the sympathetic nerve.

Pathology

The pharyngomaxillary space often becomes infected. The source of infection is frequently an inflammatory disease of the mucous membrane of the pharynx, particularly of the tonsils. These infections can travel into the pharyngomaxillary space by three different routes: (1) they can pass by continuity from the mucous membrane into the pharyngeal space, (2) they can pass along the lymph channels, and (3) they can pass along the blood vessels. Most frequently the infection travels by continuity or along the lymph channels.

When the infection has penetrated into the pharyngomaxillary space it first affects the anterior compartment, since that part of the pharyngomaxillary space lies closest to the mucous membrane of the pharynx. On the virulence of the bacteria, on the resistance of the patient and probably on the individual variability of the structure of the superior constrictor muscle and the connective tissue depend the further changes within the pharyngomaxillary space.

First of all, lymphadenitis practically always accompanies acute tonsillitis or peritonsillitis. Under circumstances not exactly known it is possible that the affected glands which are adjacent to the internal jugular vein as well as to the superficial veins of the neck (facial vein, external jugular vein), infect the vein before actual suppuration occurs within the pharyngomaxillary space or within the glands. The infection of the vein may or may not be followed by the development of a thrombus. At any rate, it is possible for blood stream infection to develop soon after the onset of an angina and, therefore, the condition is called "fulminant sepsis after angina."

That type of sepsis is well known following an infection of the internal jugular vein due to

an adjacent gland. However, I wish to emphasize that the same type of sepsis may occur following an infection of the superficial veins of the neck due to an adjacent gland. I saw a lady who ran a septic fever for a period of fifteen days when I saw her for the first time. There was a slight edema of the right mandibular angle and a slight edema of the right arytenoid. At operation there was a discoloration of the posterior facial vein on the right side. After resection of the vein, the patient felt well for several days. Then the patient again ran a septic fever due to a mediastinitis, which was drained through a posterior mediastinotomy without discovering frank pus. The patient was finally cured.

The pathologic findings in such cases is seldom conspicuous, and I wish to emphasize that cases of fulminant sepsis after angina occasionally do not present a marked pathology even on autopsy.

In contrast to fulminant sepsis is the slowly progressive suppuration of the connective tissue, the lymph channels and the lymph glands within the parapharyngeal space, the "abscess of the pharyngomaxillary space." The suppuration is so slowly progressive that the abscess may reach an enormous size and be surrounded by a thick capsule.

When the infection has a higher degree of virulence a "phlegmon of the pharyngomaxillary space" develops instead of an abscess. In cases of that type necrosis of the connective tissue frequently takes place, with the development of but little pus. There are two dangers connected with that type of infection. First, parts of the phlegmon may heal with the development of adhesions forming encapsulated abscesses between the adhesions. Second, the phlegmon may spread within the connective tissue spaces and may affect the veins, particularly the internal jugular vein, with subsequent sepsis.

The spreading of the phlegmon may take place in the following directions:

1. The phlegmon may penetrate from the anterior compartment into the posterior compartment of the pharyngomaxillary space and spread downward along the sheath of the blood vessels, resulting in thrombosis of the jugular vein, mediastinitis, edema of the larynx, pleuritis and metastases.
2. The phlegmon may penetrate from the anterior compartment into the posterior compartment and spread upward along the sheath of the blood vessels, resulting in one of the following conditions: erosion

of the internal carotid artery, phlebitis of the cavernous sinus, meningitis and abscess of the brain.

3. The phlegmon may spread from the anterior compartment along the styloglossal muscle, resulting in phlegmon of the floor of the mouth and possibly, although very rarely, osteomyelitis of the mandible.

Symptomatology

Symptomatology: The symptoms of the inflammatory diseases of the pharyngomaxillary space are dependent (1) on the localization and (2) on the character of the inflammation. In general, one can distinguish between (a) general symptoms and (b) local symptoms. The local symptoms, in turn, can be divided into organic and mechanical symptoms.

Fulminant Sepsis.—In cases of fulminant sepsis the general symptoms are in the foreground, viz., septic fever and chills and later enlargement of the spleen and jaundice. In these cases also metastases may occur. Of great importance are the blood findings. First, the absolute number of leukocytes is important. Various findings are noted. There are cases in which marked leukocytosis occurs, but there are also cases in which leukopenia and even an agranulocytosis is found, the latter cases having a poor prognosis. Furthermore, the eosinophiles are of importance, since the prognosis improves when these cells appear within the blood stream.

The local symptoms are of less importance in fulminant sepsis. Slight swelling of the glands is seen at the angle of the jaw and along the jugular vein, but similar findings may be obtained with common peritonsillitis. However, a complication must be suspected when the jugular vein is tender along its entire course or can be felt as a firm cord or when there is a diffuse swelling below the mandible or of the aryepiglottic fold.

The paucity of local symptoms explains the frequent errors in the diagnosis of these cases. Usually the condition is mistaken for pneumonia, typhoid fever or acute arthritis. Therefore, it must be borne in mind that in every case of angina an infection of the pharyngomaxillary space is to be suspected when the fever has not disappeared within three or four days or when chills are observed during that time. This is particularly true when fever or chills are observed after the angina definitely has subsided.

Abscesses.—With abscesses of the pharyngomaxillary space, general symptoms are of less importance than with fulminant sepsis. Chills are rare, and the temperature rises only to about 100.4F. Accordingly, signs of a general blood stream infection seldom appear in these cases. Only with more progressive cases are there higher temperature, moderate leukocytosis (often without shifting to the left) and sometimes signs of a kidney infection. The general symptoms, of course, increase rapidly when the abscess perforates its capsule and spreads into the connective tissue.

Contrary to the general symptoms, the local symptoms, particularly the mechanical symptoms are marked in these abscesses. Most striking is the swelling at the angle of the jaw which may extend to the tip of the mastoid process. The swelling is firm, little movable, painless and covered by a normal or cyanotic skin. The swelling grows relatively fast and may reach the size of a fist. As these abscesses, as a rule, are covered by a thick capsule, fluctuation is frequently absent. The swelling gives rather the impression of a glandular tumor. Against that diagnosis, however, speaks the rapid growth of the swelling and the absence of general malaise. It is understood that these swellings may produce a reduction of the movements of the head.

The abscesses do not grow only from within outward; they also grow inward and may extend upward along the vertebral column. As a result of that growth, the tonsils and the lateral wall of the pharynx may bulge inward and the palatopharyngeal arch and the aryepiglottic folds may become edematous, so that difficulty in swallowing is noted. Finally, a moderate degree of trismus is occasionally found due to inflammation of the internal pterygoid muscle and the pterygomandibular ligament.

If the abscess develops in the upper portion of the anterior compartment or when it extends into that area, organic symptoms are added to the mechanical symptoms mentioned above. These organic symptoms originate particularly in the trigeminal nerve. The patient complains of pain in the teeth and of headache, which radiates to the temporal area, to the ear or to the occiput. I call particular attention to the last mentioned symptom, as some writers explain the headache as a symptom of basilar meningitis. Although that might occasionally be the case, I found that

the headache is more often due to a neuritis of the auriculotemporal nerve, which leaves the third branch of the trigeminus just below the foramen ovale.

In one case concerning an infant, two years old, suffering from a huge abscess within the retrovisceral and pharyngomaxillary space, I noted after the endoral opening of the abscess an edema of the lateral parts of both eyelids on the diseased side. The edema disappeared after dilatation of the incision and administration of sulfathiazol. It is possible that the edema was due to an infection of the veins within the inferior orbital fissure. When such abscesses reach a certain size they may perforate spontaneously into the mouth or occasionally into the external auditory canal. Unfortunately, it is more common for these abscesses to perforate into the retrovisceral space or into the posterior compartment of the parapharyngeal space.

Phlegmon.—As far as the clinical aspect is concerned, phlegmon of the pharyngomaxillary space lies between fulminant sepsis and abscess of the pharyngomaxillary space. If the phlegmon develops in the typical manner it is characterized by general symptoms as well as by local symptoms. So far as the general symptoms are concerned, fever and chills occur. Nevertheless, there are exceptions in so far as a phlegmon of the pharyngomaxillary space may set in with a critical downfall of temperature signaling a collapse of the circulatory system. Other general symptoms are leukocytosis (seldom leukopenia), jaundice of the sclera, disease of the kidney, swelling of the spleen, septic edema of the larynx, edema of the brain and metastases. I saw a case, in which an edema of the lingual surface of the epiglottis, of the aryepiglottic fold and the arytenoid area on the diseased side developed within five hours. However, the edema of the larynx very seldom leads to serious disturbances of breathing.

At the onset of the phlegmon the local symptoms are of course never so marked as in the instance of an abscess. Nevertheless, swelling at the angle of the jaw, trismus, and sometimes swelling in the region of the parotid gland may be found in the early stage of the disease. The local symptoms, however, increase when the phlegmon spreads into the surrounding tissue, which can occur (1) along the vessel sheath

downward, (2) along the pterygoid plexus and the third branch of the trigeminus nerve, upward and (3) along the styloglossal muscle, forward.

In the first event, there is tenderness along the jugular vein, tenderness above the clavicle and sometimes a swelling of glands along the jugular vein. A mediastinitis may develop in about 29 per cent of the cases.

In the second event, there is pain in the teeth, headache and a feeling of obstruction of the ears, due to a serous catarrh of the middle ear. I wish to repeat that from the headache *per se* the diagnosis of a beginning basilar meningitis should not be made.

In the third event, a phlegmon of the floor of the mouth develops with swelling of the skin as well as swelling of the mucous membrane at the floor of the mouth.

The phlegmon usually spreads in more than one direction, however, one direction is always the chief direction.

The symptomatology given above is somewhat schematic. Nevertheless, it must be emphasized that each of the different types of inflammation within the pharyngomaxillary space present a different clinical entity, at least in the majority of instances.

Prognosis

The prognosis is dependent (1) on the constitutional resistance of the patient, (2) on the character of the inflammation and (3) on the time when the operation is performed. Of five patients with fulminant sepsis, two died and three were cured by an external operation. Of thirteen patients with abscess within the pharyngomaxillary space two died and eleven were cured. One of the two fatalities was due to a carcinoma of the tonsils and the other to a metastatic brain abscess. Among the eleven cases who recovered, eight had an external operation, two were incised through the mouth and one ruptured spontaneously into the external auditory canal. Of seven patients with phlegmon of the pharyngomaxillary space, four died and three were cured. Therefore, I lost eight of twenty-five cases, which makes a mortality rate of 32 per cent.

Treatment

Undoubtedly infections of the pharyngomaxillary space in the beginning stage can be cured by the administration of sulfonamides. That

holds particularly true for children. However, one must watch the masking effect of the drug, as shown by the following case which does not concern a pharyngomaxillary, but a retrovisceral abscess.

Typical Cases

E. McC., thirty-five years old, white male, suffering from schizophrenia. For four weeks he complained of difficulty in swallowing; for twelve hours of difficulty in breathing. There is no evidence of his having swallowed or aspirated a foreign body. At admission on August 22, 1940, a large swelling was found in the left half of the posterior wall of the pharynx. The temperature was 99.2. The diagnosis of a retrovisceral abscess was made. The abscess was incised in the mouth and about 50 c.c. of pus escaped. Sulfanilamide was given, but the abscess as well as the difficulty in swallowing and breathing recurred. Therefore, the abscess was again incised within the mouth on August 26 and about 200 c.c. of pus, containing streptococcus viridans, B. catarrhalis, staphylococcus aureus and fusiform bacilli, escaped. On August 28 I saw the patient for the first time. His rectal temperature was 105 and an external operation was performed.

An incision was made along the left sternocleidomastoid muscle. The sheath of the great blood vessels was not opened, but pulled aside and from the retrovisceral space a great amount of pus escaped. The connective tissue of the retrovisceral space was inflamed downward into the posterior mediastinum. The latter was closed by a tampon and the abscess was drained. The wound was left open. Sulfanilamide was given until September 7 and the fever decreased. On September 11 the temperature rose again to 104 (rectal) and there was purulent sputum. The diagnosis of bronchopneumonia was made and as the sputum contained pneumococci type VII sulfapyridine was given. In fact, the temperature decreased and was normal for a period of five days. On September 17, sulfapyridine was withdrawn and on September 18 the temperature again rose to 102 (rectal), presented an intermittent character and reached 103 on October 3.

The wound, which had in the meantime closed to a great extent, was reopened. There were necrotic granulations along the vessel sheath and the connective tissue of the retropharyngeal space was still inflamed. The wound was left open.

After the operation the temperature decreased by lysis. On October 7 sulfapyridine was again given and the temperature became normal. On October 10 sulfapyridine was withdrawn and the temperature rose again to 101. On October 15 again sulfapyridine was given. The temperature fell to 102 and a subcutaneous abscess developed over the left thyroid cartilage. On October 17 there were 3,400,000 erythrocytes, 10,000 leukocytes and 60% hemoglobin in the blood. Therefore, sulfapyridine was withdrawn and the temperature further oscillated around 102 F.

On November 2, I reopened the wound. There were granulations and adhesions between the retrovisceral

space and the vessel sheath, which were entirely removed. Toward the posterior mediastinum the retrovisceral space was closed by firm adhesions. The wound was left open and drained by iodoform gauze and a rubber drain. Following the operation the temperature was 96.4° F. for two days, and then became normal and the patient became well without the administration of any antiseptics.

It seems that the sulfonamides have the best effect in the beginning abscesses of the parapharyngeal space in children. I saw a young woman who had a severe septicemia, apparently originating from the mucous membrane of the pharynx. The disease did not respond to high dosages of sulfanilamide but recovered almost immediately when the sulfanilamide was withdrawn.

Surgical Considerations

Despite the good effect of sulfanilamide in certain cases, the majority of these cases must be treated surgically.

In cases of fulminant sepsis and of full fledged phlegmon only the external approach can be considered. The same holds true in cases of abscess when the general symptoms are well marked and the swelling is of a large size. In abscesses, however, which have not progressed so far, a trial should be given to the endoral approach. That holds particularly true for children. The endoral operation should be performed in such a manner that the superior constrictor muscle is perforated. It will, as a rule, be necessary to remove the tonsil which has to be considered as a tampon preventing the free drainage of pus from the pharyngomaxillary space into the mouth.

In the external approach, the anesthesia is a difficult problem when one has to deal with severe sepsis. Local anesthesia is dangerous. I saw a case of phlegmon of the pharyngomaxillary space with severe sepsis who died immediately after the subcutaneous injections of novocaine. Likewise rectal anesthesia induced by avertin is dangerous for patients who suffer from inflammatory disease of the upper respiratory tract. Further, there are at least two cases on record, in whom respiration stopped immediately after the slow intravenous injection of 3 to 4 c.c. of evipan sodium. General anesthesia with ether is apparently the best method, provided that the mu-

cous membrane of the upper respiratory tract is not markedly inflamed. Intratracheal ether anesthesia is but seldom necessary in cases of edema of larynx. However, in one of my cases it was very satisfactory. I prefer the incision along the anterior border of the sternocleidomastoid muscle, as that incision avoids the marginal branch of the facial nerve, which runs along the inferior border of the mandible, and it can be easily prolonged if the surgical findings demand thorough exposure of the vessel sheath. In cases of abscess within the inferior part of the pharyngomaxillary space, only the elevation of the sternocleidomastoid muscle, as a rule, is necessary to drain the abscess. In cases of phlegmon and in cases of an abscess situated in the superior part of the pharyngomaxillary space, the space has to be drained from the stylomandibular ligament. That operation is simple if the anatomic conditions are not obscured by adhesions or by swelling of the glands and edema of the connective tissue. The stylomandibular ligament must be perforated between the parotid and the submaxillary gland and a dilator must be introduced in the direction to the tip of the nose.

If the anatomic situation is not easily recognized, it is advisable to incise the superficial fascia of the neck and to expose the posterior belly of the digastric muscle. The muscle is followed to its tendon which can be located where it perforates the stylohyoid muscle. Above the muscle, the pharyngomaxillary space can be entered if the submaxillary gland with the external maxillary artery is retracted forward toward the submental spine. Occasionally, it is necessary to elevate the submaxillary gland with its capsule or even to remove the inflamed gland, a procedure which is not followed by any ill effects on the patient.

The sheath of the blood vessels must be extensively exposed in all cases in which symptoms of sepsis were noted. At first, it should not be incised, but inspected. If there are adjacent glands, they must be removed. If, after removal of the glands, the sheath is apparently normal, further exposure should not be made. If there are pathologic changes in the sheath, it must be incised. One of my cases of phlegmon of the pharyngomaxillary space was cured by incision of the vessel sheath without drainage of the pharyngomaxillary space, although there was a

definite trismus, but no symptoms from the trigeminus.

Further surgical procedure is dependent on the changes in the wall of the internal jugular vein. In a case of simple periphlebitis, characterized by a thickening and white discoloration of the wall of the vein, by fever, but without chills or other septic symptoms, the periphlebitic focus should be thoroughly exposed without incision of the vein. If, however, intermittent fever, chills or other septic symptoms were noted, the vein should be ligated below the diseased area or the entire focus should be removed. At any rate, the wound should be left open and kept open during the after care for a period of one to two weeks. That point can not be overstressed. One has to keep in mind that the soft tissue of the neck has a very marked tendency to occupy its old position when not pulled aside by the pus or by the drainage tube. If there is no obstacle, the blood vessels and the muscles fall back in their old position and prevent the proper drainage from the parapharyngeal spaces, as it happened in the case mentioned above and in several other cases. Therefore, it is necessary to dilate the wound gently during every change of dressing, as long as there is active inflammation within the pharyngomaxillary space.

In the past, I have performed prophylactic mediastinotomy in some of these cases. At present, I do not consider that procedure necessary. If the focus of infection is under control, gravitation of pus practically never occurs. If during the operation it should be discovered that the phlegmon extends down into the mediastinum or near it, a cervical mediastinotomy should be performed, which, however, is not prophylactic, but a curative one under these rare circumstances.

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Dr. Philip Levine of Newark, N. J., announced to the Congress on Obstetrics and Gynecology the discovery of a new factor in red blood cells which accounts for hundreds of infant deaths before or soon after birth. It is a mysterious substance which makes babies poison their mothers and, in a reaction, kill themselves. The principal use of the discovery to date is in testing the blood of the mother, who may require a blood transfusion during or after childbirth.

Shoveler's Fracture ("Schipperkrankheit")*

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■ "SCHIPPERKRANKHEIT" or shoveler's disease is a fracture of the spinous processes of the upper dorsal or lower cervical region of the spine occurring without direct trauma. This condition has been recognized but slightly in this country and very few articles regarding it have appeared in the American medical literature. Hall⁴ read an article on "Clay-Shoveler's Fracture" at the Australian Orthopedic Association Meeting in Sydney in 1938, the paper printed in *The Journal of Bone and Joint Surgery*, January, 1940. In a discussion of "Fractures of Vertebral Processes" in the *Proceedings of the Staff Meetings of The Mayo Clinic*³ in January, 1942, the condition is again mentioned and references are made to Hall's article. Waters, Firor and Kaplan,¹⁰ drawing from the German literature, mention this condition in the 1941 Year Book of Radiology. It is also referred to in an abstract in *Surgery, Gynecology and Obstetrics* of November, 1941, under the title "Increasing Frequency of Fractures of the Spinous Processes in Shovel Workers," by Canigiani.² However, we do not know of any original American article being written on this subject, or of any American case reports. In "Progress in Orthopedic Surgery for 1940," Hall's article is also referred to and then we read: "Editor's note: This is an interesting and unusual fracture. One of us (H.E.C.) recently had such a case, in which the fracture had been unrecognized by the attending physician and diagnosed as sprain of the neck. It is our experience that this fracture is healed by rest, with strapping or other means of support, and does not require surgical intervention."

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Hall gives three possible mechanisms by which these fractures may be explained: "(1) Direct muscle violence; (2) reflex muscle contraction; (3) whip-like pull transmitted through the supraspinal ligaments." The theory of direct muscle violence he considers the most acceptable. Waters, et al., use the terms creeping fracture, overload injury and insufficiency disease in referring to this condition. They bring out the thought that it is caused by increased traction of the muscles while the worker is in a bent or stooped posture. Structural changes first occur and then a severance of continuity produces the avulsion fracture. Canigiani states that the injury is caused by the unilateral pull of the rhomboid and trapezius muscles during the action of shoveling or scooping. According to him and also Kaspar,⁵ the avulsion fracture occurs in persons of poor physical condition or those who have not done manual labor for some time. It usually comes on after they have been engaged in shoveling for a number of days or weeks.

Hall says that it is only since 1933 that this fracture has become a clinical entity and its name implies that it is an occupational injury. Kaspar thinks that it should be designated as a vocational affection rather than as trauma. The condition occurs in shovelers, tree-grubbers, hurlers, pushers and pullers, and sometimes in athletes, in which case it is called a sport injury. We do not believe that it necessarily occurs always in those who have been out of work for a long time or in those who have been on the relief rolls; although it seems to have occurred in Germany mostly in this group and for that reason has been given the name "Schipperkrankheit." "The fracture occurs at the weakest point in the spinous process, which is the narrowest portion and is from one-half to three-quarters of an inch from the tip."

Bergman¹ reports one case, a patient of fifty-two years who had been out of work for seven years. After working a few weeks as a shoveler, he felt what was called a painful rent between his shoulder blades. There was limitation of movement of the head and shoulders and pressure pain in the region of the cervico-thoracic spine. The roentgenograms showed avulsion fracture of the spinous process of the first thoracic vertebra. After resting about a week he returned to shoveling and within a half hour had

SHOVELER'S FRACTURE—SNYDER

another sudden attack of pain in his cervico-thoracic region; however, he continued to shovel for four more days. The roentgenogram at this time showed dislocation downward of the spinous process of the first thoracic vertebra and in ad-

processes, usually the seventh cervical or first thoracic. In twelve clinical cases examined, eight had fractures of the spinous processes.

Matthes⁸ saw and treated 100 cases of shoveler's disease in 1935 while only seventy cases had



Fig. 1. G. A. R., aged fifty. Fracture of the spinous process seventh cervical vertebra occurring in a shoveler. At operation the tip of the first thoracic vertebra was also found to be fractured.



Fig. 2. Oblique view showing fracture of spinous process seventh cervical vertebra. Oblique views sometimes show fractures in the cervicothoracic area when they cannot be otherwise demonstrated.

dition avulsion of the spinous process of the seventh cervical vertebra with caudal dislocation of the fragment.

Lickint's⁶ patient, aged thirty-seven, collapsed and fell to the ground when he developed sudden violent pain in the cervical region while shoveling clay. There was pain on attempted movement of the shoulders, pain in soft tissues on both sides of the thoracic and cervical spine, but only slight tenderness to pressure over the cervical vertebra. A diagnosis of shoveler's fracture was made but not confirmed by x-ray. A later roentgenogram revealed avulsion of the tip of the spinous process of the first thoracic vertebra which had not been considered earlier. The patient had been treated for a "rheumatic affection" in the interim.

Lönnblad⁷ calls this condition a "hurler's" fracture or "hurler's back," saying that clay often sticks to the spade when laborers are digging ditches. There is a wrenching of the arm and occasionally a rupture of the trapezius or rhomboid muscles or a fracture of the spinous

been reported up to that time. This discrepancy he attributes to a possible lack of recognition of the condition. He found that the fracture occurs usually twenty to forty-five days after the beginning of a steady shoveling job or during the course of a cricket game when the player swings and misses the ball. It would seem therefore that it does not always occur as a deficiency disease and the history must be carefully elicited.

Rostock's⁹ case, a man of fifty-three working only twenty days as a coal shoveler sustained a fracture of the first thoracic spinous process while pushing a wheelbarrow. The process was excised within twenty hours. Recovery was uneventful but the histological examination revealed bone changes so extensive that "they could not possibly have developed" within one day after the injury.

Case Report

G. A. R., aged fifty, had been on relief for many months. Two months prior to the present trouble he had worked "off and on" unloading coal. On February 26 he slipped while in the act of attempting to

throw a shovel full of coal to the bin about fifteen feet away, and felt something snap between his shoulder blades. Patient was seen at his home and crepitus could be felt in the cervico-thoracic region of the spine. I did not know about the condition called "shoveler's disease" but felt that this patient had a fracture of the spinous processes in this region. X-ray examination was advised, but the question of responsibility arose; the patient could not afford an x-ray examination and the company did not feel that they were responsible. He was then referred to a free clinic and states that he was told that a fracture could not occur in this way and that roentgenograms were not necessary. Rest and bakes were advised. At the end of two weeks the patient called at my office with his original complaint. On careful palpation the fractured spinous processes could be moved about and again x-rays were advised and secured. At this time the insurance company decided to accept the responsibility and the patient was taken to the hospital. X-ray report was as follows: "X-ray examination shows that the tip of the spinous process of the seventh cervical vertebra is fractured, the distal fragment being displaced downward in the soft tissues (Fig. 1). Because two weeks had already elapsed it was deemed best to excise the fragments. This was done under local anesthetic; the spinous processes of both seventh cervical and first thoracic were loose and were removed. The wound healed per primum and the patient made uneventful recovery. He later returned to his regular work and states he has only an occasional symptom in this area, such as a feeling of tightness between the shoulders after a full day's work.

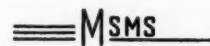
Summary

A short résumé of shoveler's fracture and an illustrative case are presented. This should be of especial interest to doctors engaged in industrial and traumatic surgery. "Schipperkrankheit" is a fracture of the spinous processes of the cervico-thoracic spine occurring in shovelers, hurlers, "pushers," and sometimes in athletes. It probably is caused by muscle pull. Structural bone changes are said to occur, followed by avulsion fracture. The condition is frequently undiagnosed. Roentgenograms should be made in every suspected case, including oblique views. Careful palpation is advised. The prognosis is favorable. Treatment is either immobilization and rest or excision. Massage is contraindicated. The patient easily develops a neurotic attitude if proper diagnosis and treatment are not instituted.

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The Needs and Possibilities of Research in Mental Disease*

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■ DURING the early period of medical history mental diseases, more than any other diseases, were the peculiar problem of gods and demons. Other diseases might yield to physical remedies and were studied with this idea in view, but throughout most of the developmental period of medical science and practice man seldom attacked mental disease except by appeals to gods or castigation of the demons. After 2,000 years of un-

*Presented at the Seventy-sixth Annual Meeting of the Michigan State Medical Society, Grand Rapids, Michigan, September 17, 1941.

disputed possession, the hold of the gods and demons was broken, or at least weakened, by the ancient Greeks about 550 B.C.; but with the rise of medieval civilization the demons regained their position in this field of human ills and remained in possession of the field until comparatively recent times. The devils never completely yielded their influence during the period of the intellectual supremacy of the Greeks, and there always remained some unreconstructed rebels to dispute the later reign of the gods. The advent of the moon as a physical etiological factor was a sign of progress. Then we finally got rid of the moon, without, however, discarding its only actual contribution, an etymological one, the word itself—"lunacy." It is now time to put aside the indifference and sense of helplessness that have retarded the study of the psychoses.

The stronger hold of the spirits on mental diseases than on other human ills was largely responsible for the early separation of psychiatry from general medicine. The effect of that separation outlasted its cause; and so when the modern intensive study of other diseases began, mental diseases were still regarded as inevitable and hopeless. Therefore, they were relatively neglected, and to this day there is an appalling apathy concerning research into what is really the greatest medical problem of modern times, the treatment and prevention of mental disease.

The extent of this problem is not generally appreciated. Some measure of it, however, may be gained from the fact that at the end of the year 1939 there were on the books of hospitals for mental disease in the United States 531,002 patients. An additional 115,633 patients were on the books of institutions for the mentally deficient and epileptic. During this same year there were admitted for the first time to these various institutions 121,536 patients. But these figures, large as they are, express only a fraction of the problem. They do not take account of the thousands of psychotic patients outside of institutions, and of additional thousands of persons suffering from neuroses, alcoholism, drug addiction, epilepsy, and personality deviations that lead to delinquency and crime. In spite of the fact that one out of every 20 persons born in this country may expect to spend part of his life in a mental hospital, there has yet been

comparatively little research into the fundamental causes of psychoses, the knowledge of which would lead to effective measures for prevention and cure.

The problem of research apparently has been considered a function of the States, where the greatest opportunity lay, and the States have neglected it. They have neglected it partly because of apathy of the workers who had access to necessary clinical material, but mainly because of lack of financial support. The States and other governmental agencies spend more than \$200,000,000 a year on the care of the mentally ill, but less than \$1,000,000 on research. In the short-sighted policy shown by these figures the possibility of relieving human suffering and a great part of the financial burden caused by mental disease have been ignored. Happily, however, there is a growing interest in research in this field, stimulated in part by discoveries that have tended to raise hope and to dissipate the more or less general fatalistic notion of the inevitability and hopelessness of certain types of mental disease. These discoveries have come in some measure from researches in other fields of medicine. There has been an overflow of benefit from these other fields into the field of mental disease that has broadened the viewpoint of psychiatrists and opened the eyes of the medical profession in general to the needs and possibilities of specific research into the mental diseases.

In the course of development of our knowledge in this field the pendulum of psychiatric thought has swung backward and forward between the organic and the psychogenic theories of causation. There have been important discoveries, but too close adherence to one-sided viewpoints has tended to slow up progress that might have been made by a sustained, broad, general view of the effects on the mind of instabilities in the purely physical organs, in the psyche itself, or the environment.

Psychiatry has to do with the mental health of human beings. Its main emphasis is on the psychoses, but it is vitally concerned with nervous disorders short of the psychoses, such as the neuroses and epilepsy, and in behavior anomalies of all types, including juvenile delinquency, alcoholism, and crime. It is not

within the scope of this paper to do more than mention some of the important milestones of the progress that has been made in this wide field.

Milestones of Progress

It is a step forward when Bernheim and others, through the study of hypnotism, showed that unconscious factors influence the behavior of subjects without the subject being aware of it. Later, Freud replaced hypnotism with his method of free thought association. Freud's researches extended into every field of mental activity. After discounting the extreme outpourings of some of his followers and rejecting, or at least reserving judgment on, much of which Freud himself has said, we can still give him credit for doing more than any other psychiatrist to reveal the relationship between normal and abnormal minds, and to increase our understanding of human motives and behavior.

Among Freud's more important disciples are Adler and Jung, who used his method of free association and dream analysis, but disagreed as to the all-importance of the sexual influence. Jung brought in broad cultural and racial motivations, in addition to more personal ones, to explain human behaviour. Adler stressed compensation for organ inferiority, expressed as a desire for power and regard, as motivating all human performance. There are other distinguished followers and mild dissenters who have made important contributions to Freudian psychology, and still others who, in voluminous outpourings, have "expounded" it or muddled the waters in this field and helped to create an impression that psychoanalysis is the all of psychiatry.

Pavlov's conditioned reflex method, by which the problem of behaviour was studied by direct laboratory experiments, stimulated the development of a school of psychiatry known as behaviourism, which would abolish instincts and explain behaviour on the basis of conditioning influences and habit. These two related methods have opened up promising and inviting vistas of experimental research into human behavior that will doubtless be more extensively explored.

Important contributions, especially in the therapy of the neuroses, have been made by

other psychological approaches to psychiatry, but no narrow psychotherapeutic approach seems to be effective with the psychoses. The field of psychoanalysis expounded by Freud was so fascinating that for a number of years other approaches received very little attention; but psychogenesis, mental mechanisms, and interpretative psychiatry, important as they are, are not sufficient alone to explain mental disease and abnormal human behaviour. Freud himself seemed to recognize this, although some of his followers have apparently forgotten it. Psychoanalysis represented an extreme swing away from the organic point of view. There is a tendency now in the other direction, but it would be a grave mistake if, in our researches, we should ignore the importance of psychogenic factors.

The field of psychogenic diseases has been constantly narrowing, but the psychological approach is important, even in the treatment of some of the purely organic diseases. Interest in psychosomatic medicine attests this, and we should not lose sight of the fact that psychological factors may produce physical diseases, namely, tensions that bring on goiter, and anxiety and fear that tend to produce stomach ulcer. The production of experimental neurosis in dogs by irritating psychological stimuli is further evidence that we must look further than primary physical anomalies or inferiorities for a complete understanding of many nervous and mental symptoms and for their prevention and treatment.

Recent advances in medical knowledge suggest lines of approach to the study of the fundamental basis of mental disease. Psychiatry has benefited by researches that were undertaken without psychiatric aims, but the field is too large to depend upon chance findings. There needs to be an intensification of effort with specific psychiatric goals. Studies should be made in biology, biochemistry, neurophysiology, pathology, endocrinology, morphology, psychology, et cetera, as these subjects may have a bearing on mental disease. Such studies should be supplemented by extensive field studies into social and environmental factors that influence behaviour and mental health.

Pellagra Research and Its Significance

The extensive researches into pellagra were made because this disease was an important

cause of disability and death; and when Goldberger discovered that pellagra was due to a nutritional deficiency, he had no idea of the importance of his work in contributing to the understanding of certain types of mental disease. We now cure pellagrous psychosis in a very short time by the use of nicotinic acid, and along with this it has been discovered that many of the confusional states in persons thought to be suffering with senile dementia clear up rapidly under the influence of nicotinic acid, clearly showing that many of these states are due to deficiency of this vitamin.

The most important thing derived from these discoveries is the suggestion that they give us of the possible metabolic cause of many abnormal mental states. Some of these may be due to failure to ingest vital food elements, and others to fundamental deficiency in metabolic processes that interferes with the proper assimilation of vital elements that are ingested. Such deficiency might be remedied by appropriate treatment, based on precise knowledge of the disordered mechanism, knowledge that can be acquired only by painstaking research. The back wards of many of our poorly supported mental hospitals doubtless contain many deteriorated patients formerly thought to have regressed to a more comfortable level to escape from painful complexes, et cetera, but who really are suffering from irreversible neural damage due to long continued metabolic deficiency. Some of these patients came in with recoverable conditions, but through neglect, labelled care and treatment, they have become hopeless life patients.

Shock Therapy.—The fate of the shock therapy in mental diseases has not yet been determined. Some fear that the damage to brain structure caused by it may overbalance the good that it does, and others feel that intensive treatment by older methods brings about as many recoveries. For the purpose of this discussion we may discount these differences of opinion and reap what benefits we may from our knowledge of one thing that shock therapy does. It undoubtedly reverses mental processes very rapidly in many psychotic cases, and so far as is known it does so by interfering with the metabolism of the brain. Insulin does this by decreasing the amount of glucose that normally goes to the brain. Metrazol

and electric shock, by interfering with the oxygen necessary to burn glucose, produce the same result in terms of reduced energy to the brain. The fact that many of the patients cured by this method, eventually relapse is not important. The important thing for our purpose is that through a shock which for a short period interferes with what is supposed to be normal physiological brain function, abnormal psychological function is replaced by normal psychological function. The question raised is, What has happened to bring this about? and this question can be answered only by a painstaking research into the chemistry and physiology of the brain and of the various organs and glands that coöperate with it to produce normal mental function.

Refrigeration.—Another drastic empirical method of treatment of the psychoses that furnishes food for thought is refrigeration. This method has been used only on a few patients, but the observation has been made that, as the body temperature falls, a delusioned restless patient may become clear and calm. The question here is, What normal process has been started or what abnormal process has been stopped that causes the abnormally functioning mind temporarily to function normally? In raising the question about the improvement seen here and in other forms of shock treatment we discount, without totally discarding the psychogenic explanation that the patient retreats into normality in order to escape from a disagreeable treatment that is more painful to him than the complex that originally caused him to withdraw into a psychosis.

The importance of metabolic disturbances in the production of mental diseases is indicated by what has recently been learned of the avitaminotic etiology of some of the mental disorders of chronic alcoholism. It has been clearly demonstrated that Wernicke's syndrome and the encephalopathy of nicotinic acid deficiency, two conditions common in chronic alcoholism, are due to a vitamin deficiency. It is also strongly suggested that Korsakoff psychosis and delirium tremens are at least dependent in part on nutritional deficiency. The importance of the alcoholic psychoses and of disabling chronic alcoholism short of psychosis is not generally appreciated. Alcoholic psychoses account for 4.5 per cent of all first admissions to mental hospitals in the United States, and it is conservatively estimated that at any

one time in the country there are at least 200,000 persons rendered practically helpless by chronic alcoholism. It is a psychiatric problem and one demanding intensive research. These researches need to have a much broader base than merely an exploration of the nutritional factors. Attention is called to it here because the known nutritional factors in some alcoholic mental diseases, as well as in pellagrous mental disease, suggest the utmost importance of the biochemical approach in the exploration of those mental diseases whose etiology is yet obscure.

It is impossible, even if it were desirable, to dissociate the study of mental disease from the mental deficiencies and from organic nervous diseases. Each of these groups of diseases is dependent largely upon disorders of the brain and supporting organs, and what we find out about one group may have great significance for the understanding of the other two.

Mental deficiency has many causes, including heredity and the early destruction of cortical cells, due to injury or infections. The glandular etiology of cretinism is well known. The recent discovery that failure of the lipoid metabolism may be the cause of that hereditary deficiency known as amaurotic family idiocy suggests a fascinating line of approach to other obscure defects, both nervous and mental. The discovery, by purely empirical methods, that prostigmin would relieve the symptoms of myasthenia gravis and that quinine would relieve the symptoms of myotonia has great significance for research. The significance of the liberation of acetylcholine at the myoneural junction in myasthenia gravis is not clearly understood, but that it is vitally involved has suggested a chemical as well as a pharmacological and physiological approach to this and other nervous diseases, including the muscular dystrophies and atrophies.

A complete understanding of such obscure nervous diseases may not enable us to do much for the sufferers from these conditions, but the knowledge gained in arriving at such an understanding will provide a material contribution with a beneficial overflow that may be useful if applied to the general field of nervous and mental disease. There is some evidence that climate may be an important factor in the epidemiology of multiple sclerosis. This suggests numerous possibilities and warns that in the study of these obscure diseases we should not allow our attention to be

frozen by striking discoveries to narrow lines of approach.

Fields for Research

There are numerous ramifications of indicated fields for research. The significance of allergy in such conditions as migraine and epilepsy, and possibly in the production of certain nervous and episodal mental symptoms; the changes in electrical brain potential shown by the electroencephalogram in epilepsy and drug addiction, and possibly in certain mental diseases; the endocrine deficiencies known to cause nervousness and mental deficiency, as well as femininity, with its resulting personality differences; the vitamin deficiencies that cause mental disease and neural degeneration; the experimental production in human beings of neurasthenic and other nervous symptoms by induced thiamin deficiency; the almost magical curative effect of nicotinic acid in confusional states due to food deficiency; the changes in brain metabolism and mental states brought about by shock therapy; the temporary appearance of menopausal vaginal epithelium in young women passing through mental depressions, as well as many other significant phenomena too numerous to be mentioned here, suggest a broad laboratory and clinical basis upon which mental disease must be investigated to supplement psychological and social studies, which can never be neglected.

The mental diseases whose etiology is definitely known, namely, those due to trauma, alcohol, syphilis, and other infections, et cetera, do not present such baffling problems to clinicians, research workers, and health officers as that large body of disorders usually referred to as functional or as of psychogenic origin. The causes of the former group being known, preventive measures are obvious, and the research worker, armed with definite information about what it is that he is attacking, has been able to give the clinician an effective remedy in some instances, notably in the psychoses due to syphilis and pellagra. Dementia præcox is one of the worst diseases that afflicts mankind. It attacks large numbers of youths and young adults, and tends to become chronic. Approximately 46 per cent of all resident patients in State mental hospitals have this disease. We must supplement our psychological approach to these diseases and to manic depressive psychosis by other research methods. The solution of the problems in connection with the

latter group, that is, the functional diseases, has been left largely to philosophically- and psychologically-minded medically-trained persons, who have done much to explain the mental mechanisms involved, but who, despite their success with the neuroses, have done very little to prevent or cure the psychoses. In order to solve these diseases we must look also to chemistry, physics, biology, sociology, physiology, and other related sciences, and bear in mind that we are not studying the mind alone or the body alone or the social organization alone. It is a psychosomatic study in which we must regard the body and mind as mutually dependent upon one another and upon environmental factors to produce an integrated unit, and in order to understand this unit we must collect and integrate facts from all the sciences that may affect this unit. Quoting Lewis, "The concepts and systems of study as outlined and followed by the old masters in psychiatry, valuable and epoch-making as they were, are not sufficiently elastic to satisfy the demands of present experiences and observations." Already, according to Lewis, there are "studies in autointoxication, brain chemistry, general biochemistry, physical chemistry, endocrinology, heredity, morphology, psychology, psychoanalysis, psychometrics, social neuroses of childhood temperaments of children, psychology of destitute children, criminology, drug addiction, various phases of human conduct, influences of emotions over the bodily functions, many problems suggested by the picture in epidemic encephalitis, and the ever-widening field of the epilepsies."

Subsidized Fields of Research

The researches carried on in this broad field, while encouraging as indicative of a healthy point of view, have been inadequate, desultory, and uncoordinated. The available material and talent have not been utilized fully or to the best advantage. The universities have expended their efforts almost solely on other problems, leaving research into mental diseases to the States, and the States have ignored it. The support given by the States to their mental institutions has been in the main so meager that the talented men connected with these institutions have had neither the time nor the equipment to conduct fundamental research. New York has a real research psychiatric institute, and a few other States have given some support to the problem. The foundations have

helped some, but not in proportion to that given by them for researches in other branches of medicine. An outstanding contribution is the grant of approximately \$40,000 a year by the Scottish Rite Masons for research in dementia præcox. These contributions reflect a growing appreciation of the needs and possibilities of research, but the support so far received is only a fraction of what is needed.

Because in this country the care and treatment of mental patients is a public problem and the various governmental units look after 97.7 per cent of all psychiatric cases that need institutional treatment, most of the initiative for, and sustaining work in, psychiatric research should come from governmental agencies. The ideal situation would be for every State to have a research psychiatric institute in connection with its State hospitals; but for financial reasons, as well as for an unfortunate lack of interest, the realization of this situation seems to be a hopeless dream. Private agencies cannot be expected to take up the burden. It is, therefore, the duty of the Federal Government to conduct psychiatric research and to stimulate, coordinate, and finance such research by the States, universities, clinics, and other agencies who may show an intelligent interest in it. Isolated individuals have in the past made brilliant contributions to psychological and philosophical medicine; but from the very nature of the problem the financially unsupported individual cannot delve deeply into the fundamental sensitive base upon which mental symptoms are probably engrafted, and which must be understood if we are ever to make appreciable progress in the prevention and cure of the psychoses.

The Federal Government has been liberal with medical research. It supports in Washington the National Institute of Health and the National Cancer Institute. The Public Health Service is allowed about \$3,000,000 a year for medical research, but only about \$30,000 for research into mental disease. Goldberger and others worked on pellagra for about 20 years at the National Institute of Health and in the field before the cause of the disease was found. This one discovery is worth more to humanity than all the money that has been spent on the Institute since its foundation.

Similar continued studies are necessary for many of the mental and nervous disease problems. The situation should be met by the estab-

lishment, in the Public Health Service, of an institute for the study of mental and nervous diseases, including epilepsy. This institute should carry on extensive laboratory, clinical and field studies into all phases of the problem arising in connection with these diseases. It should have a national advisory council of capable scientists who would act in an advisory capacity and pass on the merits of requests for funds to conduct research at universities, clinics, and hospitals, thus capitalizing on talent and ideas wherever they may be found. It should coördinate research in the mental and nervous disease field by library researches that would enable it to place in the hands of all interested persons and institutions information as to what is being done by other workers in various parts of the world, so that there would be no unnecessary duplication of effort, and it should establish fellowships for the training of research workers at the institute and elsewhere.

An important study that cannot be adequately conducted except by an institute or other organization that is assured of receiving continuous financial support over a number of years is that of the heredity of mental disease. There is some rather inadequate information about this subject at the present time which indicates an hereditary basis for such diseases as dementia præcox and manic depressive insanity; but mental reactions are so complex, and so many factors enter into the production of mental disease, that the mere examination of clinical histories in mental institutions is insufficient to give an accurate picture of the possible influence of heredity. What is needed is a series of elaborate clinical and field studies of several thousand families, extending through at least three generations. Only in this way will we be able to evaluate the relative importance of psychological, physical, and social factors in the production of mental disease and give heredity its proper place in the scheme of things.

A committee of leading psychiatrists and neurologists organized to study the subject of research into nervous and mental diseases met with the Surgeon General of the Public Health Service last December and recommended to him the establishment, in the Service, of an institute to study mental and nervous diseases. The committee recommended that the institute conduct and encourage basic laboratory research, clinical research, and field studies, the laboratory research

to include biochemical, vitamin and other nutritional studies, physiological studies, electrophysical studies, pathology, morphology, psychology, biology, and studies including a possible physical basis for the psychoneuroses—the clinical studies to embrace newer methods of treatment, the effect of new drugs, the field studies to include environmental causes of mental diseases, heredity, the study of psychosomatic relations, the study of results accomplished by child guidance clinics, studies of the psychiatric aspects of alcoholism and crime. These studies are not to be made solely by the institute, but by grants-in-aid from the institute, which would act as a synthesizing and coördinating body.

Conclusion

Research into nervous and mental diseases offers a most hopeful field for progress in the medical sciences. With the accumulation and proper integration of facts from all sources, means may be found to prevent and to cure many of the mental cases that, in the present state of our knowledge, are hopeless. Doubtless we will eventually find that many of the cases depend upon irreversible structural anomalies and are hopeless. Others will be found to be due to hereditary or acquired disorders of biochemical or other physical nature that can be prevented or cured. Still others will be shown to be due to the impact of social and psychogenic factors upon a more or less sensitive background. Many of these will be prevented or cured.

In the projected studies we must never lose sight of eugenics. It would doubtless be unfortunate for the race if we could prevent and cure mental diseases based upon hereditary weaknesses unless, at the same time, we developed some technique for eliminating these weaknesses from the people, because, after all, the good that prevention and treatment may do would eventually fail of purpose if it is accomplished by increasing the number of fundamentally unstable people in the population.

≡≡≡ **MSMS** ≡≡≡

Refuse to discuss a doctor's ailment with him unless you are being asked to treat him. But if you are, don't let him share the responsibility; treat him as you would any other patient. And when you yourself are ailing choose your doctor as decisively as you choose your solicitor, and put yourself as unreservedly in his hands.—*Lancet* (through *Lilly's Physician's Bulletin*).

Embolectomy of the External Iliac Artery

Case Report

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and

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■ THE reason for this report is that most physi-
cians and the majority of surgeons still have
the attitude of hopelessness toward the treatment
of emboli of the extremities in spite of the pres-
ent favorable results that can be expected of im-
mediate surgery. We believe that such an atti-
tude should be dispelled. It is our hope that
a recounting of a successful case coming from
outside a large medical center should encourage
more physicians to attempt early radical treat-
ment.

Although the actual technique of successful
blood vessel surgery has been known for some
years the recent knowledge of the pathologic
physiology involved has made^{6,45} the proce-
dure safe and the results favorable. Ssabane-
jew was the first to attempt femoral embolecto-
my in 1895. In 1907, Moynihan of Leeds, Samp-
son Handley of London,¹ and Trendelenburg of
Germany, all reported unsuccessful attempts.
Labey reported a successful operation in 1911.^{5,11}
The greatest advances were made by Professor
Einar Key,^{17,18} of Stockholm who reported thirty-
two embolectomies with complete recoveries be-
tween 1912 and 1934. In 1933 Pearse⁴¹ was able
to report a series of two hundred eighty-two
(282) cases from the literature. With the refine-
ment of heparin, its clinical application first in
Sweden and then Canada where Best, Charles
and Scott² were collaborating with Murray, blood
vessel surgery has seen rapid advances. In 1941
Murray^{33,34} was able to report many successful
embolectomies in the major arteries of the ex-

trémities and even in the abdominal arteries.
Many more successes are being reported.

Ochsner and Gage⁴⁰ have rationalized the path-
ologic physiology of secondary vasospasm al-
ways associated with vascular disease.

Their clinical application of this has been a
major contribution to the subject of vascular
disease as a whole. Both this and the employ-
ment of heparin have made embolectomy of the
arteries of the extremities a relatively safe, sim-
ple, and successful procedure. It is our feeling
that more embolectomies should be attempted in
the smaller medical centers since specialized equip-
ment is unnecessary and the time taken to trans-
port a patient any distance reduces the hope of
successful embolectomy nearly to zero.

Case Report

A. B., aged fifty-six, was seen by one of us (W. H.
M.), April 22, 1941, at which time, he appeared to be
a well-developed man of five feet ten inches, weight
one hundred six (106) pounds. He stated that he
had always been well until the past year, although he
came from an arteriosclerotic family and knew that
he had had a high blood pressure for some years. He
had been conscious of some shortness of breath and ir-
regularity of heart action. During the previous three
weeks this had increased. He coughed a good deal,
slept poorly and had discomfort in the upper abdomen.
For the previous two or three days he had a continu-
ous aching sensation in the precordium. He was start-
ed on digitalis and appeared to be improving until the
day of his embolism.

The patient called on the afternoon of April 24, 1941,
because of an agonizing pain in his left leg. The at-
tack came on suddenly while he was lying in bed fol-
lowing momentary faintness. The pain was excruciat-
ing and extended from the lower thigh to the toes;
was most severe in the region of the calf. There was
almost immediately an onset of numbness and a sense
of coldness in the extremity. After a few minutes he
could not move his thigh or leg muscles. This his-
tory over the telephone suggested the diagnosis and
because of previous experiences with similar cases we
both immediately called on the patient.

He was obviously in great pain, was ashen pale.
His foot and leg showed extreme pallor; later this
extended to the thigh. The skin was cold from the
foot to the thigh and anesthesia was present in the
foot and leg. Later on the anesthesia level rose toward
the thigh. Pulsation in the dorsalis pedis and posterior
tibial and in the popliteal could not be demonstrated.
The knee and ankle jerks became absent in the hos-
pital to which he was sent immediately after adminis-
tering ½ grain morphine sulfate. The heart was mod-
erately enlarged. There was a soft systolic murmur
at the apex which was not transmitted through to the
back. The pulse was 130; the rhythm was the irregu-
lar irregularity of auricular fibrillation; consequently

the blood pressure readings ranged from 170 to 120 systolic and 110 diastolic. The radial artery felt rather hard. Crepitant râles were heard at the bases of both lungs and the liver was 2 cm. below the costal margin.

The day of his embolism the need for prompt action was recognized. Consequently within forty-five minutes of the time he was first seen, the patient was admitted to Hurley Hospital and given low spinal anesthesia. We chose to expose the popliteal artery because of questionable pulsation in the femoral and the failure to palpate a mass there. The incision of the popliteal region was 8 cm. long and after the artery was mobilized it was opened by a 2 cm. longitudinal incision. An expected clot was not seen. There was a slow ooze of blood which was fairly dark. Common duct stone forceps were inserted upward to a distance of about 10 cm. but no embolus was encountered.

The posterior tibial artery was opened through a 2 cm. incision and heparin was irrigated through the vessel from below upward. Both arteries were closed with fine silk in a continuous suture. Ten c.c. of heparin were injected into the popliteal vein. The patient was then turned to a semi-Fowler's position and the femoral artery exposed. Areolar tissue and sympathetic nerve fibers were stripped from the artery so that it was completely mobilized. The artery was opened through a 3 cm. incision 2 cm. below the inguinal ligament, but there was no active bleeding. Silk traction sutures were inserted as in a choledochostomy. Gall-bladder forceps were inserted in the external iliac artery. At a distance of about 6 cm. a firm body was grasped. This was easily extracted and with the gush of blood, two smaller pieces came with it. They were all irregular, dark red, well-organized thrombi obviously originating from some distant focus. The artery was compressed intermittently while the incision in the artery was closed with a fine suture on an atraumatic needle, everting the intima. The artery was observed for about five minutes and its pulsations were strong and obviously transmitted as far as the finger could palpate. There was no change in color of the extremity and due to the irregularity of the pulse, no dorsalis pedis or popliteal pulse could be felt by an assistant. A fat pad was drawn across the suture line and the wound closed in layers. The patient was rather irrational until the embolus was removed, when he immediately became rational.

It is of some interest that we moistened all sponges in a solution of citrate throughout the operation. The dilution employed was 80 c.c. of 2.5 per cent sodium citrate to 500 c.c. of sterile water, which is the exact amount we add to 500 c.c. of blood in transfusion.

His after-care consisted of 10 c.c. doses of heparin every four hours for thirty-six hours but his clotting time could not be extended beyond six minutes. The extremity was placed under a cradle of lights extending from the abdomen to beyond the toes, using pillows as a support. The following morning the extremity appeared normal but no pulsations could be felt in the extremity except at the femoral, probably due to his continued auricular fibrillation.

He returned to work as machine repair mechanic on July 7, working forty hours a week. He was on his

farm from July 29 to September 2, working about eight hours a day without discomfort. On September 3, he returned to the factory, working seventy hours a week. He was examined on October 1 and December 26, 1940. He had no dyspnea, no edema, and no precordial discomfort. The left leg gives him no trouble, but the right one cramps a little if he walks very fast. The absence of claudication on the affected side is probably due to the stripping of the sympathetics from the femoral and popliteal in mobilizing the artery. It will be interesting to watch claudication return on that side. His pulse was 80, and the rhythm that of auricular fibrillation. His blood pressure was 150/110 and his urine was normal. He has no other complaints. Digitalis gr. 1½ daily keeps his heart rate satisfactory.

Discussion

The diagnosis of arterial embolism was made with certainty by the severity of symptoms and clarity of physical signs in our case. Occasionally the spasm associated with thrombosis may be mistaken for embolism. The most difficult differentiation is found associated with trauma, especially compound fractures. In such cases, operation would seem preferable to conservative measures, while in non-traumatic embolism paravertebral injection should be tried first.

The origin of the embolus is of some interest. In our case there were no signs or symptoms of bacterial endocarditis although the pathologic report showed the emboli to be "fibrinated and purulent." There was no history suggestive of a mural thrombus from a myocardial infarct. We believe our case falls into the group most commonly found in embolism of the aorta and its branches; namely, those patients with auricular fibrillation. When mitral stenosis supervenes, thrombi are most likely to form in the auricular appendage of the dilated left auricle. When dislodged this passes through the left ventricle and lodges in any branch of the aorta. On another occasion one of us (W. H. M.) saw an embolism following the resumption of normal sinus rhythm with the use of quinidine. Naturally the drug was blamed but here we have an instance without any change in the fibrillation.

The problem of localizing the embolus is not always easy unless the patient is thin and the mass is accessible to palpation. The usual mistake, which we made, is gauging the level of the obstruction by the location of the secondary vasospasm. Secondary vasospasm is always distal to the obstruction and accounts

for most of the pain of embolism. Tests such as arteriography are clinically inadvisable for they are time-consuming. There is less harm in making several exploratory incisions than opening far above the embolus. Ochsner and Gage⁴⁰ have contributed the only rational conservative alternative to immediate surgery. Paravertebral sympathetic injection with 2 per cent procaine hydrochloride obliterates vasospasm, renders collateral circulation not only efficient but actually augments it, and often makes embolectomy unnecessary. This procedure, though we did not use it, should nearly always be done for it is not time-consuming and is an excellent adjunct if insufficient collateral circulation still demands embolectomy. Experience in other cases in which paravertebral injection was employed have been favorable to date in our hands. If paravertebral injection cannot be accomplished due to technical failure no harm has been done. We felt that embolectomy should be done forthwith in our case because of the evident strain on his already weakened cardiac reserve and our conviction that his advanced sclerosis would make his collateral circulation inefficient in spite of paravertebral block. It has long been known that emboli in the peripheral arteries causes a marked fluctuation in blood pressure. It was quite striking in our case that as soon as the embolus was removed the patient became rational even though he had had no pain from the beginning of the operation.

When an embolus lodges in a major peripheral vessel, cessation of circulation by the plug and by vasospasm of the artery, its collaterals, and, to some extent, its venous supply causes early tissue death. Pearse⁴¹ has shown that the circulation must be reestablished within the first ten hours to hope for 40 per cent success. The first five hours is better and after twenty-four hours only 8 per cent success can be expected. It is obvious that conservative measures as an alternative to surgery except the one of paravertebral injection have no place in the treatment of embolism except as adjuncts. Once tissue damage approaches necrosis in the arterial walls secondary thrombi are very troublesome. It follows that transporting a patient long distances to larger medical centers from smaller communities is undesirable and, we believe, unnecessary

since no special equipment is needed other than the ordinary supplies common even to the small general hospital. Heparin is available in practically all communities to help prevent secondary thrombus formation at the site of the arterial incision. Gentleness in the handling of tissues is more important than special equipment or reagents.

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MSMS

Treatment of Typhoid Fever with Typhoid Vaccine*

A Skin Reaction Controlled Low Dosage Method Preliminary Report

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■ In a previous article the author reported that specific-like results were obtained with the use of staphylococcus toxoid by means of a skin reaction controlled low dosage method of administration. The method consists of a preliminary intracutaneous injection in order to determine skin sensitivity to the toxoid prior to therapy. Persons showing *negative* skin reactions were given weekly intracutaneous and subcutaneous injections of the toxoid. Dosage was gauged and controlled by the size of the previous weekly skin reaction.

Specific-like results were obtained by this method in group I carriers of the staphylococci having *negative* skin reactions and chronic or recurrent staphylococcic infections. Rapid clinical improvement was often observed within seven to fourteen days after the injection of as little as 0.77 units of the toxoid. Large local and general reactions were avoided and the total maximum

dose of toxoid injected was only 10 to 20 per cent of the total amount of toxoid usually injected.

Assuming that the results observed with the use of staphylococcus toxoid could be explained according to the posology theory of Wright, other commercial antigens were used by the same method for comparative purposes.

One of the few antigens found to be suitable for use by the method was typhoid vaccine.

Various amounts of typhoid vaccine were injected intracutaneously. In different individuals similar doses of typhoid vaccine showed different size twenty-four-hour skin reactions. In the same individual the size of the twenty-four-hour skin reaction varied with the amount of typhoid vaccine injected.

A skin dose of 10 to 20 million typhoid bacilli (0.01 to 0.02 c.c.) seemed to be suitable for skin testing purposes. When this dose of vaccine was given to persons who had had typhoid fever large *positive* twenty-four to seventy-two-hour skin reactions were observed, often 7.5 cm. in diameter. *Negative* or slightly *positive* twenty-four-hour skin reactions were occasionally observed in persons who had not had typhoid fever.

These skin reactions have been observed before. Gay¹ in his review of typhoid fever in 1918 stated that Gay and Force and Force and Stevens noted similar skin reactions when a typhoid extract called "typhoidin" was used intracutaneously in an attempt to determine susceptibility to typhoid fever. In 1930 Tuft² proved that 500 million typhoid bacilli given in four divided doses produced the same degree of protection against the disease as 3500 million bacilli given intramuscularly or subcutaneously. He noted that the initial intracutaneous dose of 50 million bacilli produced *negative* or slightly *positive* twenty-four-hour skin reactions in 84 per cent of the 269 persons being immunized.

A trial of this method of using typhoid vaccine in the treatment of typhoid fever was made in 1939 during a sporadic outbreak of typhoid fever in Detroit. I attended the family who entertained a group of thirty-five persons at a summer cottage near the city. The source of the disease was traced to this gathering. Of the thirty-five persons exposed seven contracted the disease. Five others were known to have had low grade fever and intestinal symptoms for several weeks following their exposure.

*From the Staphylococcus Streptococcus Typhoid Carrier Clinic, Deaconess Hospital, Detroit, Michigan, in cooperation with the Michigan Department of Health and the Detroit Department of Health.

TYPHOID FEVER—TOWNSEND

TABLE I. METHOD OF TREATMENT AND RESULTS

Temp.	Day	Intracutaneous (million bacilli)	Skin Reaction	Subcutaneous (million bacilli)
104	1 (home)	10	neg.	
105	2 (hosp.)			
106	4			
106	5	20	neg.	
104	6			50
103	8	50	neg.	
101	10			
98.8	11-13			
98.8	14			100
98.8	17 (home)			
98.8	18	50	pos.	
98.8	26			150

Material Used

Stock typhoid vaccine* (1000 million bacilli per c.c.) was used. The vaccine was prepared from the Rawling's strain of the organism used by the Army Medical School, the United States Public Health Service and the Navy. In September, 1938, the strain was changed to the Panama Carrier Strain 58, as recommended by Colonel Siler after his research.

"The organism is grown on suitable solid culture media, harvested, standardized by dilution made by suitable turbidity standards, injected into animals and compared with standard vaccine used by the National Institute of Health. The vaccine is then released, either on protocol or test by the N.I.H. There is no standard of potency for typhoid vaccine. The protection obtained by the use of the vaccine made from the Panama Carrier strain seems to be considerably greater than that made from the Rawling's strain."†

Method of Administration and Results

Patient J. B., male, aged two, was given 10 million bacilli intracutaneously when typhoid fever was suspected. No skin reaction was observed twenty-four hours later. The temperature at this time was 104 degrees. The Widal Test was negative and did not become positive until four days later. Increasing intracutaneous doses of typhoid vaccine were given every three or four days and subcutaneous doses were added as shown in Table I. Subsequent injections of 20 to

50 million bacilli also showed *negative* skin reactions. On the eighteenth day of the disease a slight *positive* skin reaction occurred after the injection of 50 million bacilli.

Clinical improvement was noted on the sixth day after the injection of 30 million bacilli. The temperature fell from 106 degrees to normal in 11 days after the injection of 130 million bacilli. A total dose of 430 million bacilli was given, 130 million intracutaneously and 300 million subcutaneously. No general reaction was observed following the injections.

Similar treatment was given the two exposed persons because it was indicated. Neither took the disease. The intracutaneous injection of 20 million bacilli in the mother and father showed twenty-four hour skin reactions 7.5 cm. and 5 cm. in diameter, respectively. A similar dose given one week later showed a skin reaction of 4 cm. in the mother and 2 cm. in the father. One week later the injection of 40 million bacilli showed the same size skin reactions. General reactions followed the injections of the vaccine in these persons. Three weekly intracutaneous and subcutaneous injections were given at the same time for a total dose of 480 million bacilli, 80 million intracutaneously and 400 million subcutaneously.

Comment

The six other persons who acquired the disease had typical protracted typhoid fever. Several had severe complications.

The rapid clinical improvement following the use of 130 million bacilli in a case of typhoid fever corresponds to the clinical improvement previously noted following the injection of 77 units of staphylococcus toxoid in the treatment of acute febrile staphylococcic infections.

The skin reactions observed with the use of typhoid vaccine and previously observed with the use of staphylococcus toxoid seem to conform to the earlier observations made by Gay, Force, Stevens and Tuft.

The skin reactions observed with the use of typhoid vaccine and previously observed with the use of staphylococcus toxoid seem to be the *opposite* to those produced by Schick and Dick Test material, since *positive* skin reactions occur in persons who have had the disease or seem to be protected against the disease while *negative* skin reactions occur in persons actively infected with the disease.

Gay believes that skin sensitization to typhoid vaccine material is necessary to insure protection against the disease.

It is my belief that the total dosage in these cases is still too high. It is not necessary to increase or long continue treatment after the tem-

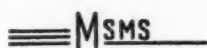
*Michigan Department of Health Laboratories.

†Moyer, H. Allen: Personal communication to the author.

perature returns to normal. The multiplying, cumulative and sensitizing immune effects should insure sterilization of the stool. Additional dosage can always be given when indicated but we cannot stop the "negative" immune effects of overdosage. Correct dosage can be determined if the method is found of value in the treatment of typhoid carriers.

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Mistakes Made in the Diagnosis and Estimation of Deafness

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■ THE otological mind was long dominated by universally accepted routine hearing tests. In a previous paper, the fallacies of these have been pointed out.¹⁰ At present there is no universally accepted routine hearing examination, but one is in the making.

The old methods were used with instruments which were crude and inexact. New inventions in the electrical world made possible the elaboration of new methods of precision—the audiometers. But while the advance is great it will be seen that the mere use of an instrument of precision is no guarantee of precision of results.

While the electric audiometer was in its early years the older otologists were right in insisting that audiometric methods and also the old methods of investigating hearing should be used; for otherwise there would have been no means of correlating the findings of the new world of otologists with those of the old. That point of view was also valuable because there have been a number of makes of audiometers, the values of which have not coincided and, perhaps, still do

not coincide with previous methods of examination. But any idea that tuning fork, voice and whisper tests done in different parts of the country coincided has long been discarded as foolish. Time has, however, shown that some audiometers are reliable. Bunch¹ has testified that in six years there has been no measurable change in the calibration or output of an instrument that has now been in constant daily use for over ten years.

Since the invention of the audiometer a large histopathologic collection accompanied by adequate clinical histories and careful audiometer records has been formed at Johns Hopkins Hospital and will become the basis for the pathologic understanding of deafness. The records are there by the thousands. There is no collection of material in the old world to support the old methods comparable in quality or quantity.

Time has shown that the older methods, even when used with impossibly time-consuming exactitude, cannot give the precise results obtained by the new methods. The older ones should be permanently discarded.

Do not forget that in the future as in the past, the estimation of hearing defects—whether tested by the old or the new methods—is reached only by the exercise of sound clinical judgment.

Are Tuning-fork Tests Necessary?

Many of you, no doubt, are convinced of the truth of the oft repeated statement that no hearing test is complete if it does not include tuning-fork tests. I challenge the validity of that statement.

How many of you possess eight tuning forks of different pitch? The audiometer provides eight. How many possess tuning forks lower than 64 d.v.? The 16 d.v. and 32 d.v. forks are scarce, expensive and unreliable; confusing adventitious sounds accompany the vibration of each of these. The audiometer provides a satisfactory 64 d.v. tone. With it a perfectly satisfactory estimate of the lower limit of a patient's hearing can be made. How many of you possess tuning forks higher than 4096 d.v.? The audiometer affords a satisfactory estimation of a patient's upper tone appreciation. For it gives a tone of 8192 and even higher. Those of you who still use whistles and monochords produce sounds whose pitch and intensity you know not and which you cannot reproduce with certainty.

*Read before Section of Otolaryngology, Michigan State Medical Society, Grand Rapids, September 19, 1941.

The Weber and Rinne are the only other tuning-fork tests which need be considered. Of what real value is the Weber test today? A decision as to whether the Rinne is positive or negative can be made much quicker and with more

ear apart from its fellow. The hearing of one ear cannot be accurately evaluated unless the opposite ear is absolutely excluded. This is now *attempted* by masking. Masking consists of making such a sound in the other ear that it cannot



Fig. 1. Apparatus described by Holmgren.⁵ Fig. 2. Picture of ear pieces strapped on with white web.

accuracy by using the audiometer than by using the tuning fork. The bone-conduction and air-conduction thresholds for the 512 d.v. tone are found and charted. If there is a difference of more than 45 decibels between the bone and air-conduction thresholds the Rinne will be positive; if this threshold difference is less than 45 d.v. the Rinne will be negative. Bunch² states that by the use of the audiometer at least two factors of error in the standard Rinne test can be eliminated; the error due to the constant decrement of the fork and the error due to possible variations in pressure and in the selection of the point of contact.

The pitch-audiometer properly used will provide you with every bit of information you can get from the instruments of yesterday and very much more accurately.

Advantages of the Audiometer

One of the most important bits of information that has emerged from the use of the audiometer is that it is extremely difficult to test one

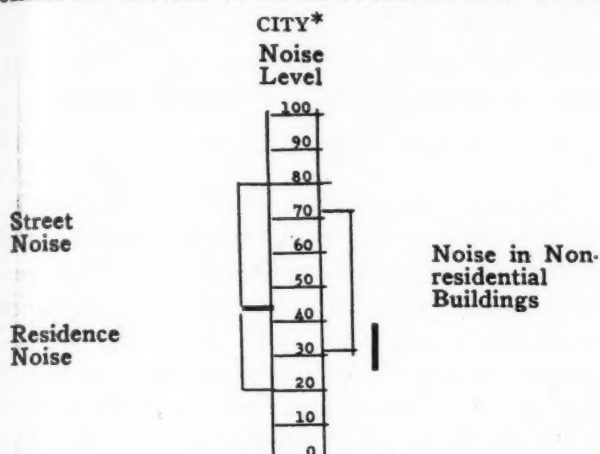
perceive the sound put into the ear being tested. So important has masking become in the estimation of hearing that any test done without masking can be discarded.

The ear to be masked is tightly packed with a plug of absorbent cotton thoroughly impregnated with a mixture of equal parts of wax and paraffin. Over the ear is placed a large ear pad of soft sponge rubber in the center of which is the telephone earpiece which carries the masking sound. The masking sound is provided by an electric buzzer and its intensity varied by calibrated steps.

Even these devices will not completely mask an ear for, even when carefully used, sound from the opposite ear will reach the masked ear if the masked ear has 40 decibels of hearing greater than its fellow. This inability to mask out the good ear still renders imperfect the estimation of hearing in a seriously impaired ear.

A second source of error lies in the application of the earpiece to the ear. Sound perceived from a telephone earpiece depends in part on the intensity of the sound, in part on the distance

CHART I. RANGES OF NOISE FOUND IN NEW YORK



*Values for street noise are taken from the Noise Abatement Commission survey; for other noises, from the N.E.L.A.—A. T. & T. Company survey. All values are averages from the locations tested.

of the vibrating disc from the eardrum, and in part on the exclusion of outside sounds. Various types of apparatus have been devised to hold these earpieces on the ear in constant fashion. One of these is seen in Figure 1.⁵ But these are cumbersome and difficult to use. The simplest available practical method is to strap the earpieces to the ears snugly by a plain strap of webbing put around the ear (Fig. 2).

The earpiece from the audiometer must be snugly fitted in the same manner. It can be properly adjusted and held to the ear to be tested by the same head strap which holds the masking earpiece.

Another source of error discovered by the use of precision instruments and which the older otologist had no means of estimating is outside noise. Hearing by the older methods was calculated by the distance intervening between the subject and the sound. This intervening distance laid the procedure open to error because of surrounding noise. As Newhart⁷ says, "Besides distracting the attention of the person being tested the noises mask the sounds used for testing." The noise levels encountered are well shown in Chart 1 adapted from the report of the New York Noise Abatement Commission of 1930. A heavy line has been drawn to show how the noise level of the average city doctor's office has been found to range between 25 and 35 decibels. This is equal to about one quarter of normal hearing. The practical point about this is that examinations made in such a noise could miss a hearing loss that is less than 25 per cent (Wells⁹). To avoid

this serious error modern hearing testing requires the use of rooms that are approximately sound-proof.

All examinations of the hearing are for one of two purposes, namely: first, simply to estimate the hearing acuity,—and second, to make a diagnosis, to know the kind of trouble that is causing the impairment in the hearing.

The first objective can be attained by the use of two audiometers, the 4A and the 2A, in the ordinary office without masking and if necessary by a nurse or technician. The first objective is a perfectly laudable one. But the average specialist will attain no further information than the above approximation unless he himself performs the test with masking, in a sound-proof room and using the additional precautions which will follow.

The audiometrist—or layman—who are endeavouring to "optometrise" the otological world would desire earnestly to get from my paper a means of discovering how to achieve the second objective, namely how to make a diagnosis. Fortunately or otherwise, the phenomenon of hearing is extraordinarily complex. There are no easy roads to the diagnosis of deafness. The diagnosis of deafness will depend as it always has on good history taking and thorough examination and good hearing tests.

Here, I confine my remarks on these other essentials of the diagnostic procedure to emphasize that the condition of the eustachian tube must be ascertained. Some have written that an eardrum which is approximately normal in appearance postulates a patent well-functioning tube. This is not so, as many of you have discovered for yourselves. In order to have good hearing the eustachian tubes must function normally. In order to ascertain its condition the nasopharynx must be thoroughly seen through the nasopharyngoscope and the patency of the tube ascertained by listening carefully to the sound produced on catheterization. There is a difference between a "tubal" sound and a "tympanic" sound. A common source of error is that of blowing air across the mouth of the tube instead of into the tube. This is a source of error which otologists are prone to deny until they stumble upon it accidentally when using a nasopharyngoscope.

And now we must proceed to the testing of the hearing. A simple fork is inexpensive and

does not go out of order. But the time-honoured method of striking it is a great source of error. For those of you who must use a tuning fork I advise that you provide yourselves with a good calibrated fork of 512 d.v., and have a McNally

is the instrument which at present most closely approximates ability to hear the human voice; it is the best means at our disposal to follow the ups and downs of a patient's useful hearing.

Errors with the Audiometer

But don't imagine that this instrument can be easily used without error. Widely varying estimates of the state of hearing of school children of the same school but by different examiners are notorious proofs of this. Imperfect adjustment of the jack can be a great source of error. But the commonest error comes from maladjustment of the earpiece on the ear. How to overcome this, has been mentioned already. The use of this machine without masking is a further source of error.

Pitch-audiometer testing consists in the discovery of the exact point which represents the lowest audible intensity of each tone which the patient can hear. The determination of this exact point is a procedure of considerable difficulty. It requires good technique and certain qualities in the examiner.

The technique is important. The examiner must first decide whether he will approach the threshold from below or from above. Desirable as the approach from below may be it is accompanied by disadvantages which render it impracticable. The patient's attention is acutely directed to listening for an unknown sound. He is liable to make the error of signalling the perception of a click from the machine, or a hum from the machine or an accidental noise made by some movement of his own or of the audiometer, or some chance noise which penetrates the hearing room from outside. Or if he has a memory of the tone he is expected to hear he is liable not to signal that he hears it until he is sure that he does hear it; and that point will be found far from the actual threshold.

It is more practical to commence by letting the patient hear a strong intensity of the sound he is to listen for; an intensity that he is sure to hear. Then proceed from a lower but moderate intensity which the patient signals he can hear and gradually diminish the intensity until the patient ceases to press the signal button. The reading can then be indicated on the chart by a faint mark.

The same procedure is then followed for each of the remaining seven tones of the audiometer.

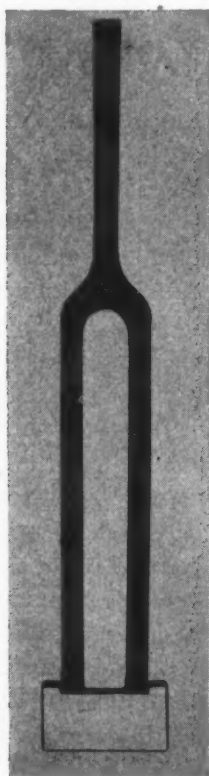


Fig. 3. McNally activator.

activator made for it (Fig. 3).⁶ Use it always in the same room under, as far as possible, the same conditions and in the same manner. The constant, careful use of this will provide you with records which you can rely upon. The addition of other forks is quite unnecessary—it only adds expense and confusion.

Audiometers on the other hand are intricate pieces of mechanism and require proper housing and every care the makers advise. Otherwise they will go out of order and give inaccurate results. What means do you take to make sure that your audiometer is in first-class condition?

The simplest and least pretentious of the audiometers is the 4A. This instrument does no more than in a general way gauge the capacity of the hearing function. It is not an instrument of precision and it can be operated by a layman. But it can be used to advantage by the otologist who is striving for diagnosis provided he use it with masking and in a sound-proofed room; for it

In this way a preliminary curve of the patient's tone appreciation can be charted.

However, the points on this preliminary curve are probably inaccurate. Each of them should then be verified or corrected by a re-testing, approaching the threshold from below. This re-testing takes only a short time and at the end of it the examiner is reasonably certain of the accuracy of his measurements and these can then be marked indelibly on the chart and the points joined to produce a curved line which the eye can contrast with the heavy black "normal" line on the chart.

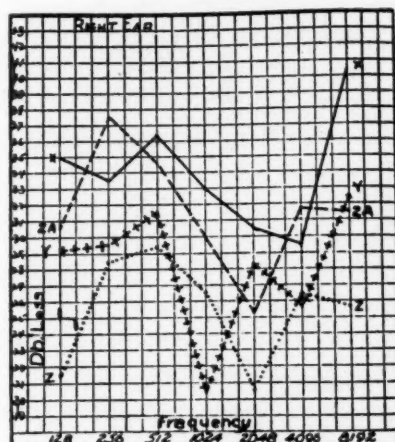
No audiometer is or at least will remain free from adventitious sounds. The click of the tone switch—the scraping of the tone-interrupter—the accidental rubbing of a connecting cord—are faint sounds to be sure, but each of you has known a patient to flash his signal in response to these. There is a humming noise from some well-known audiometers which is plainly perceptible in a sound-proof room. In some audiometers the higher intensities of the testing tones can be heard independently of the ear-piece. All these sources may result in the patient signalling responses which taken together produce a hearing curve which is not that of his actual hearing. The examiner must take great pains to catch such errors.

Do not think that audiometer testing for the purpose of accurate records can be entrusted to a nurse or technician of average ability. The examiner must have certain qualities, conscientiousness, interest, patience, reliability, thoroughness, keenness, discernment, ability to observe closely—and he must be critical of his own methods. Made by a person who is lazy, careless, indifferent or preoccupied the records will be useless.

But the examiner must also be competent and he will not be unless he has some acquaintance with the general principles of psychophysics.⁷ For each of us is aware that it is "difficult in the case of a gradually decreasing humming sound to distinguish between a real fading sensation and a lingering memory image." The phenomenon must be watched for the patient continuing to press the signal button for a long time after the sound has been cut off—showing that there is an after-image of some sort. Sometimes the explanation will be that certain tones approximate the tone of the masking sound; sometimes

that certain tones are approximating the patient's tinnitus. The phenomenon must be watched for the patient signalling that he hears the tone which the examiner purposely has omitted to make. The explanation may be that the patient

CHART II.



was anticipating the sound and imagined it was heard—or it may be that the patient is hearing an adventitious sound. In any case it would be a source of error. These phenomena must be noted when they occur and a decision made as to their cause. Some have suggested that notation be made of the state of the weather, for damp weather makes some patients' eustachian tubes act sluggishly.

The examiner must remember that he is completely dependent upon the response of the patient being examined; he must therefore note the quality of the patient's response and record it. Is the patient slow or quick to respond, keenly alert or inattentive, coöperative or obstructing, his mind on his task or preoccupied by something else? Discernment in the examiner is an essential.

Inattention to these matters must make the audiometer records quite untrustworthy in spite of the best instrument of precision. Make no mistake about this. A pitch-audiometer used in the ordinary office in an ordinary office building will only produce an approximation to the capacity of the hearing function of a patient. Such is useless for gauging the efficacy of any particular form of treatment.

It is a gross error to endeavor to state the percentage of actual hearing or of hearing loss that your patient has. It is an attempt at accuracy

regarding a complex phenomenon which the present state of our knowledge does not warrant. The percentage curves on certain audiometer charts are, therefore most pernicious. They are of no legal significance.

It is an error to think that your audiometric charts of a patient can be fairly co-related with those taken elsewhere with a different machine. The great dissimilarity of machines is well shown in Chart 2 from Hayden,⁴ showing the hearing of sixteen persons as recorded by four different makes of audiometer. A mere glance is sufficient to show that the curves obtained are grossly different. Which was correct? Was any of them correct? There is a great need for standardization and calibration of audiometers. A specialist must have a good machine and must use good technique to have confidence that he can compare his own records with one another. The old tests were grossly unreliable—the new tests are very much more reliable, but they are still imperfect.

On the charts supplied by the makers of the three most used audiometers there is a curve to show the points at which there is complete loss of serviceable hearing. This curve may be a source of unintentional error. For it has been shown that total deafness for speech occurs for an average hearing loss of 85 decibels.⁸ Therefore, a patient having in the important speech range a loss of 85 per cent (or having a hearing retention of only 15 per cent according to another) would be categorized wrongly unless he were regrouped as a 100 per cent disability for the hearing of speech.

Some of the old beliefs about the significance of certain pictures of deafness are being disproven. The old teaching was that loss of appreciation of the upper tones was invariably indicative of irreparable nerve deafness. This old belief is now known to be erroneous. Crowe and Burnam have shown that impaired hearing for high tones with good hearing for low tones is the earliest symptom of middle ear as well as inner ear deafness in children.³

To the practicing otologist the most important use of the methods of precision as supplied by the audiometers is the provision of records which show the progress up or down of a patient's deafness. Audiometer charts—even those imperfectly taken—impress a patient temporarily. But even patients can discern errors in method. Unless

taken with meticulous care such a record means nothing to you, and the practitioner to whom a copy is sent also knows that it means nothing. But taken with every attempt to avoid the errors I have mentioned audiometer records will be a great source of satisfaction.

Stop looking for easy roads to the diagnosis of deafness.

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Some Obstetric Opinions*

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■ If I were asked what is most needed generally to improve obstetric results I would be inclined to answer: more meticulous attention to details and a much greater degree of conservatism. The fundamental basis in good obstetric care is sound obstetric teaching in our medical schools. I wonder if we teachers of obstetrics are not emphasizing to our students abnormality at the expense of plain, everyday obstetric horse sense.

*From the Department of Obstetrics and Gynecology, Emory University School of Medicine.
Presented at the Seventy-sixth Annual Meeting of the Michigan State Medical Society, Grand Rapids, September 18, 1941.

There can be no substitute for a thorough knowledge of the mechanism of labor. I believe that this mechanism must be learned from women having babies. Manikin practice is helpful, but a poor substitute.

Economic Situation.—In any discussion of obstetric results the economic situation must be carefully considered. I am unable to see how there can be a sustained improvement in obstetric results without a parallel economic improvement. Nor have I ever been able to see how it is possible to aid the individual unless the individual first tries to aid herself. Indifference is undoubtedly a larger factor in poor obstetric results than is generally acknowledged.

In discussing obstetric problems in the United States cognizance must be taken of the enormous area and the many sectional differences. Some of these differences are climate, race, environment, nutrition, opportunity, education, and demand and supply. The practice of obstetrics in Minnesota and Wisconsin cannot be compared with that in Georgia and South Carolina.

We teach students our obstetric adage: the poorer the environment in which we are working, the greater should be our conservatism. We are careful to stress the fact that this does not mean that a good environment is an excuse for radicalism.

Common Cold.—There should be no correspondence courses and observational practice in antepartum care. There are many things that are routine and are to be done with every pregnant woman and many other procedures depend upon the individual patient. Good antepartum care is meticulous attention to details. I think it probable that the most frequent menace to pregnant women is the common cold. I venture the assertion that its importance is rarely mentioned when prenatal instructions are given. Prophylaxis should be stressed and proper treatment should be emphasized. The best of such antepartum care is not adequate if we have not the ability and will to follow through.

Time Limits.—Obstetric practice cannot be done on schedule. No arbitrary time limit can be put on any labor. As long as the mother's pulse is below a hundred, the uterus relaxing be-

tween pains, the fetal heart tones regular and rhythmic, indications for interference should be proven regardless of the length of time.

Pituitary Extract.—My opinion is that "contracted pelvis," "a long rigid cervix," "cervical dystocia" and "uterine inertia" are greatly overworked terms. It is hard for me to discuss pituitary extract and not be radical. There can be no question about the value of the drug. But I insist that it takes a large obstetric experience to use the drug sanely and safely and I believe that, on the whole, it does much more harm than good.

Toxemia.—True toxemia is a common obstetric complication. In so far as I know the best of antepartum care does not prevent true toxemia. Good antepartum care enables us to recognize an early toxemia. The end results usually depend upon rational treatment. It is my opinion that the best treatment for severe true toxemia is the induction of labor. Chronic vascular disease is not the rare result of a severe toxemia; one can almost say that it is the common result. The longer the toxemia hypertension is allowed to go, the greater is the chance of its permanency.

One cannot even estimate the maternal lives that have been lost or wrecked in the interests of problematic babies. Eclampsia, "what sins are committed in thy name!" Regardless of the treatment used the keystone should be conservatism. If this conservatism is real, results are uniformly good and material mortality probably will not exceed 10 per cent. It is taking a long time for this knowledge to become generally known to the profession. I think there should be no exception to the rule: when convulsions are controlled, induce labor. Why tempt Providence the second time? Prematurity should not beget procrastination. The last cesarean section done in our clinic for true toxemia was twelve years ago.

Greater effort must be made properly to classify the hypertensions of pregnancy. Chronic vascular disease and chronic nephritis are not obstetric diseases and as a cause of death unfairly increase maternal mortality. Parenthetically, it may be said that essential hypertension is a fairly common complication of pregnancy; chronic nephritis is relatively rare.

Incomplete Abortion.—I think "incomplete abortion" is an abused term in the obstetric vocabulary. The large majority of abortions will empty spontaneously if given the opportunity. The only interference that may be indicated is a tight vaginal pack. If properly done it usually controls hemorrhage. The involution of the uterus after abortion is relatively slower than after term labor. A longer stay in bed prevents hemorrhage from subinvolution and unnecessary curettages are avoided.

Placenta Previa. — Considerable experience with accidental separation of the normally situated placenta leads me to believe that cesarean section is rarely indicated in its treatment. Contrary to many opinions, I think that the more severe the separation, the greater should be the conservatism. Fetal mortality is high regardless of the severity. Conservative treatment indisputably offers a lower mortality. Vaginal bleeding and a tense, tender uterus usually establishes the diagnosis. Blood transfusion, the treatment of shock, rupture of the membranes, and a tight abdominal binder is the treatment of choice. In the occasional case tight vaginal tamponade is indicated. I have found that a Beck's abdominal binder is a most important piece of our obstetric equipment.

Some type of placenta previa is not a rare complication of pregnancy. There should be no expectant treatment. I quote Irving about the use of cesarean section:

"Cesarean section is indicated in complete and partial placenta previa when the child is alive, undeformed, and almost at term, but not otherwise, as a competent obstetrician may achieve delivery by Braxton Hick's version or the use of the Voorhee's bag with equal safety to the mother."

Lateral and low-lying previas can usually be safely managed by rupture of the membranes and a tight abdominal binder. The binder occasionally increases hemorrhage and, if not closely watched, will, now and then, kill the baby. Vaginal packing is probably never indicated and always a greater menace than a help. Transfusion of blood is the greatest adjunct. If blood cannot be immediately procured a six per cent solution of gum acacia in normal saline may be used. I believe that we have saved many lives by its use in our clinic. Many women with placenta previa

die from postpartum hemorrhage. The uterus and vagina should be packed after delivery.

Bartholomew in a recent article on placenta previa and premature separation says: "As to treatment there is a very important fundamental difference between the two conditions. In premature separation of the placenta, on account of the frequently associated toxemia, the patient is either in shock or is continually on the verge of it. Any procedure involving trauma, such as cesarean section, internal version and extraction, difficult forceps delivery or manual dilatation of the cervix, is very apt to precipitate or aggravate shock. Statistics abundantly prove that the mortality rate rapidly increases with any of the above operative procedures, even though the patient may not have lost much blood. On the contrary, shock is not as much of a problem in placenta previa and if the patient has been transfused or is not too anemic, operative procedures are better tolerated."

Puerperal Infections.—Some of my ideas about puerperal infections are not orthodox. I believe many women are infected after delivery by careless procedures. I also believe that most severe puerperal infections are from someone's nose or throat. During labor wear a mask that covers nose and mouth. Insist that assistants do the same. The nurse should wear a mask when doing perineal dressings during the early puerperium. No report of blood or intrauterine cultures is complete unless the organisms have been grown anaerobically and aerobically. Perhaps it is the type of patient we see, but we find the colon bacillus almost as much of a menace as the hemolytic streptococcus. In the blood stream the colon bacillus is deadly. This is an additional reason for a careful perineal toilet during the puerperium.

The prevention of puerperal infections is of paramount importance because we are almost helpless in treating them. I have not found any curative therapy. The prognosis depends largely upon the virulence of the particular organism infecting the woman at the time, and her own resistance. We attempt to increase her resistance and we should be sure to do nothing to break it down. I have never given a uterine douche during the puerperium, nor have I ever curetted a puerperal uterus. Light curettage with a dull curet is a misnomer.

Probably the majority of you will consider the following statement as born of ignorance or as a rank heresy: sulfanilamide or similar drugs have not been a life saver in our clinic. It is much better to attempt prevention than it is to depend upon sulfanilamide for a miraculous cure. We do blood transfusions frequently and usually with full amounts. This is imperative where doses of sulfanilamide are being used. Surgery is rarely indicated. It is a good rule after deciding surgery is necessary to wait for a few days. We prefer conservative treatment rather than surgery in puerperal peritonitis. I do not believe it possible to drain the peritoneal cavity in such cases.

Concomitant Disease.—A safe rule to follow in the practice of obstetrics is: given a constitutional disease plus pregnancy—treat the disease and ignore the pregnancy. One year ago a former student wrote me a letter in which he stated how much he had profited from my conservative teaching. Within a few days another former student came into my office. He had just returned from a visit to the writer of the letter. The man who was profiting from my conservative teaching was proud of some recent work he had done. A woman at term with advanced pulmonary tuberculosis. He reasoned that labor would be bad for her. His treatment? Manual dilatation of the cervix, podalic version and extraction! The patient managed to get by, but I almost had apoplexy. There seems no field of medicine where shock is as generally disregarded as in obstetrics. Violent deliveries are bad enough but when exhaustion and shock are added, they are usually tragic.

Occiput Posteriors.—During some eighteen years of private practice I experienced many difficulties with occiput posterior positions. In many instances these difficulties were caused by the way in which the labor was managed. I kept my patients in bed when they should have been up and about. Sedation was started too early and given too often. Some one has said, "The ability to have a few hard bearing down pains at the start of the second stage of labor with posterior positions is often better than a later forceps operation, no matter how skillfully done."

I confess my inability accurately to predict when a particular head will pass through its

pelvis. This, notwithstanding recent advances in the technique of pelvic measurements. A thorough test of labor usually solves the problem. It is probable that cesarean section, without a test of labor, is justified only rarely. Familiarity with the technically more difficult lower segment operation must be mastered if best results are to be obtained.

Nutrition.—Nutrition during pregnancy is not as great a problem with you gentlemen as it is with us. However, it is probably a larger problem with all of us than we realize. I must admit my rather meager knowledge of the subject. I believe there is a larger relationship between diet and some complications of pregnancy than is generally recognized. For practical purposes the subject is not difficult. In our clinic inability to balance diet is the result of the economic situation of our patients. I think there is much need for emphasizing common sense principles of diet as a part of our antepartum care. May I suggest that a variety of natural, properly selected foods meets all nutritional requirements? Artificial vitamins are a poor substitute and are expensive.

Syphilis.—My experience with the serologic tests for syphilis has been limited to the Wassermann and Kahn. When these tests are properly done they are as reliable in pregnancy as in the nonpregnant. Finding syphilis in early pregnancy with a proper follow through saves many heartaches. There is, in so far as I know, only one drug that prevents congenital syphilis. This is arsenic. Do not try to cure the disease in the mother. Be satisfied to protect the baby. Our clinic is trying to simplify this treatment. At present we are using only weekly injections of arsenic. These start at the time the diagnosis is made and are continued until labor. Neosalvarsan is used in 0.45 gm. doses and mapharsen in 0.05 gm. If the patient is not seen until the last trimester two doses weekly are given. The results have not been carefully analyzed but I feel sure they are as satisfactory as other methods. Syphilologists will not consider this an orthodox treatment. They recommend alternating courses of arsenic and bismuth, emphasis on the arsenic which should begin and end the courses. Adequate treatment will protect the baby in ninety to ninety-five per cent of the women, regardless of the activity of the disease.

Heart Disease.—There can be no question that heart disease as a complication of pregnancy is a treacherous disease. It is essential that evaluations be made on the basis of cardiac reserve rather than on a particular type of lesion. There is no doubt but that the great majority of pregnant women with heart disease, if properly managed and instructed, can be safely carried through pregnancy and normal labor with low forceps termination. In my opinion textbooks do not sufficiently stress the economic position of women. A regime relatively safe for a banker's wife might be dangerous for a woman who has to do the family washing. In general the same applies to tuberculosis as a complication of pregnancy. I think that prevalent opinion dictates that, in general, a reliable history of previous failure is a definite indication for interruption of pregnancy before the fifth month. This is best done by hysterotomy using local anesthesia. Drop ether carefully given is safe. Sterilization should always be done. Failure first developed during early pregnancy should be treated in the same way. It is usually possible to establish compensation and this should always be tried.

I agree with Hamilton and Irving that heart disease with or without failure during the second half of pregnancy is a medical and not a surgical condition. Such cases intelligently and conservatively managed show best results. I also agree that cesarean at or about term for sterilization is not a proper procedure. Sterilization can be done later with much less risk.

Analgesia.—Perhaps I am not competent to discuss analgesia during labor. Much of the furore has developed since I quit private practice. Nevertheless, the subject must be taught medical students and I must help do it. The key-stone of our teaching along this line is to keep emphasizing a comfortable labor rather than a painless labor. It is the amount of analgesia given, not the kind, that is important. One of your Michigan men, Dr. Kamperman, has recently remarked on the subject very succinctly: "I think the middle of the road in analgesia is still the proper thing. Personally, I think we should train our patients not to expect a painless labor. We should not tell them we will meet them at the front door with an analgesia. They should expect to go through part of the labor before analgesia is given."

"In this way a minimum of analgesia is needed to relieve the patient. Most patients can cheerfully endure the early labor pains. If we delay giving analgesia until dilatation of the cervix has well started, then usually one dose will carry the patient through the remaining labor. The amount that is given is exceedingly important."

Conclusion

In conclusion, I quote from a recent article of mine that was published in *The Journal of the Medical Association of Georgia*:

"I think that one should not accept responsibility for obstetrics and not follow through. Small fees should not beget careless work. Good prenatal care requires a small amount of time and, in the aggregate, but a small sum of money. It returns large dividends in life, health and satisfaction. It should provide the authoritative source of education for pregnant women. Quackery has for its keynote the ability of the particular cult to sell itself and its methods to its patients."

"We doctors are often too timid, reticent and I fear, at times, neglectful. A woman recently entered an Atlanta hospital in the last month of pregnancy with congestive heart failure. She had consulted a doctor several months before. He had asked a few questions, had not examined her and had given no detailed instructions. The doctor was an old student of mine. He was not taught that sort of obstetrics."

"I am a conservative, but if we are to keep the practice of medicine in the United States as it is now, there are some things we doctors must do. We must be more honestly aggressive, more of an educator of our individual patients, more coöperative with each other, and we must do the best job we can under the conditions in which we are working."

"In my humble opinion there is too much individual autocracy in the practice of medicine. There is not enough give and take, not enough resiliency. In obstetrics particularly, there seems to be too many radical decisions that are based upon relatively small personal experience."

"I have never found any way to make the practice of obstetrics easy. The way is long and hard. We should not undertake the work if we are not willing to accept the responsibility to the best of our ability."

MSMS

A bandage that can be contracted and stiffened to any desired degree for use in place of a cast, tourniquet, or elastic stocking, has just been patented. It is made of rubber strands which have been coated with a plastic. After the bandage has been wound about the part affected, the plastic can be hardened to the extent desired by treatment with chemicals. The patent specifically covers the process of coating the rubber strands, which previously had not been successful, the inventor states.—*Science News Letter*, September 26, 1942.

Treatment of Parkinson's Disease

A Comparison of Atropine Sulphate and the Wines of American and Bulgarian Belladonna*

By S. Stephen Bohn, M.D.
Detroit, Michigan

S. STEPHEN BOHN, M.D.

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■ As is so well known to every practitioner of medicine, the treatment of Parkinson's disease is extremely unsatisfactory. Many kinds of drugs have been used in the treatment of this disease and although some of them influence certain aspects of the illness the patient is seldom benefited to a great extent. Of these drugs the belladonna group has been of special interest.

Bremer⁴ in 1925 was the first to note the unusual tolerance of patients with Parkinsonism for atropine sulphate and Anna Kleemann⁵ in 1929 was the first to record its use in the treatment of thirty-seven such patients. This method was investigated in this country by Adams and Hays^{1,2} The treatment consists in giving atropine sulphate 0.5 per cent solution orally starting with one drop (1.6 mg.) three times a day and increasing the dosage gradually until the limit of that patient's tolerance is reached. As soon as toxic symptoms develop the dosage is reduced until the maximal beneficial effect is obtained with the least toxicity. The average dose tolerated by such patients varies between ten to 18 drops three times a day. The effect of this medication was found to decrease the rigidity and tremor and to improve the gait, speech, oculogyric crises and the patient's general feeling of well being. In addition the sialorrhea so often found in patients with chronic encephalitis was also improved or eliminated (Finkelman and Shapiro⁵). The improvement of symptoms with this treatment was sometimes reported to be quite

amazing. For instance, Adams and Hays² reported tremor to be practically abolished in 50 per cent, rigidity to be almost entirely removed in 35 per cent and oculogyric crises nearly all controlled in their thirty-five patients.

In 1926 Ivan Raeff, an apothecary in Chipka, Bulgaria, gained considerable fame for his treatment of the Parkinsonian syndrome with the wine of Bulgarian belladonna. Raeff made a decoction of the macerated root using white wine as a menstrum. It was suggested that the success of his treatment was due to the superior quality of the Bulgarian belladonna root (Neuwahl and Fenwick.⁷) Since that time, however, many investigators have compared the effects of the Bulgarian belladonna root with those from other countries; viz., Italy, Austria, France, England, Hungary, Germany and America and in each instance the belladonna roots from these countries were found to be equal to those from Bulgaria.

Although the patients are always given increasing doses of the drug until the limit of tolerance is reached and if toxic symptoms become too severe the dose is reduced until optimum effects are obtained, the success of the belladonna treatment has varied with different investigators. These investigators usually reported 50 to 75 per cent of their patients as being markedly to moderately improved but occasionally rather startling results have been stated such as the ability of previously bedridden patients to walk and the handwriting to change from an uncontrollable scrawl to complete legibility. It also has been the consensus of opinion that Parkinsonism due to encephalitis responds better to this treatment than that due to arteriosclerosis, probably because the former usually tolerate larger amounts of the belladonna preparations. The variation in results among the investigators may be due to the fact that the alkaloidal content of the wine of belladonna may vary considerably from sample to sample (Bailey⁸) and that the potency of this medication may occasionally deteriorate on standing.

Some investigators used the wine of belladonna while others used a dessicated extract of the wine of belladonna or a combination of alkaloids of the belladonna root (rabellon†). In this regard Price and Merritt⁸ found little difference

*Gratitude is expressed to Dr. E. A. Sharp, director of the department of clinical investigation, Parke, Davis and Company, for his help in making this investigation possible.

†Rabellon is manufactured by Sharp and Dohme and contains the alkaloids of U.S.P. belladonna in tablet form. Each tablet contains hyoscyamine 0.4507 mg.; atropine sulphate 0.0372 mg.; scopolamine hydrobromide 0.0119 mg.

among three preparations, viz., desiccated white wine extract of U.S.P. belladonna root, white wine extract of Bulgarian belladonna root and rabellon although the first was considered to be the best. They also found that the patients who improved had an average duration of symptoms about five years less than the unimproved cases. Finally, they listed the contraindications to belladonna therapy as follows: arteriosclerotic heart disease, angina pectoris, severe generalized arteriosclerosis, mental disturbance, chronic nephritis, glaucoma, malnutrition, general debility and dehydration.

Method of Procedure

Since fair results had previously been obtained by the author in the treatment of Parkinsonism using atropine sulphate 0.5 per cent solution it was decided to compare the effect of this drug with the wines of American and Bulgarian belladonna. Through the courtesy of Parke, Davis and Company a supply of Bulgarian belladonna was obtained and prepared in 1939 for experimental use. Twenty pounds (9090 Gm.) of the Bulgarian belladonna root were ground as for percolation and then extracted by maceration and stirred for 24 hours at room temperature. The extracting medium was sherry wine of about 18 per cent alcohol content. The clear liquid extract was filtered off, pressure being used at the end to squeeze out as much of the liquid as possible. The root itself assayed 0.52 per cent of mydriatic alkaloids. The extract assayed 0.0332 per cent of mydriatic alkaloids and contained 18 per cent alcohol. At the same time an equal amount of the regular stock of belladonna root (American) was prepared in the same manner as the Bulgarian root. In this lot the drug itself assayed 0.67 per cent of mydriatic alkaloids; the extract 0.0424 per cent. The alcoholic content of this extract was 19 per cent.

An attempt was made to treat thirty cases of Parkinsonism with each of the three medications, atropine sulphate, the wine of American belladonna and the wine of Bulgarian belladonna. Nine of the thirty patients were treated in the Harper Hospital outpatient department; eight patients were treated at the Lapeer State Home and Training School; thirteen patients were treated in private practice. No attempt was made to restrict or add to the individual's ordinary dietary or smoking habits since it was felt that these patients should maintain their regular mode

of living so far as food and tobacco were concerned. The patient's drug habits, however, were modified by discontinuing all previous treatment as well as eliminating the barbiturates since phenobarbital is known to aggravate the Parkinsonian rigidity (Ziskind and Ziskind⁹).

Of the thirty patients twenty-five were male and five female. The types of Parkinsonism were diagnosed as post-encephalitic (chronic encephalitis) in twenty, idiopathic or arteriosclerotic in eight and posttraumatic and syphilitic in one each. The average duration of symptoms could not be accurately determined in most cases.

Treatment

The method of treatment attempted consisted in usually starting these patients on three drops (4.8 mg.) three times a day of 0.5 per cent atropine sulphate solution and increasing the dosage slowly until the maximum amount that could be tolerated with the most benefit and least toxicity was reached. They were kept on this drug for at least a month and then changed to the wine of American belladonna starting usually with one dram (1.3 mg. of total alkaloids) three times daily and then slowly increasing the dosage until the optimum dose was again reached. After being kept on this drug for a month the patients were changed to the wine of Bulgarian belladonna starting usually with the optimal dosage found previously for the American belladonna and increasing slowly as before. This was possible because it was soon found that the wine of Bulgarian belladonna was less toxic and a higher dose of the drug could be tolerated than the wine of American belladonna. The patients were kept on the Bulgarian belladonna for a month as with the other two drugs. After three months of such investigation the results of the three drugs were reviewed and the patients were continued on the drug which seemed to have been the most effective.

Four of the thirty patients refused to be treated for the necessary three months which was felt to be the minimum time allowable for a comparison of the effects of the three drugs. Several others refused to take one or two of the three drugs for the necessary month each. These patients were not included in the final results since only those who maintained their therapy for a month on each of the three drugs could be considered for further treatment. The total

length of treatment in these patients varied from four months to almost three years, the majority being treated more than a year.

Results

The average optimal dose of the atropine sulphate solution in sixteen patients with chronic encephalitis was 18 drops (28.8 mg.) three times daily while in seven of the patients with idiopathic Parkinsonism it was only 14 drops (22.4 mg.) three times a day. On being transferred to the wine of American belladonna, fifteen patients with chronic encephalitis tolerated an average dose of three drams (5.09 mg.) three times a day while six of the idiopathic type averaged only two drams (3.39 mg.) three times a day. Seventeen of the chronic encephalitis cases were then found to tolerate an average dose of six and one-half drams (8.9 mg.) three times daily of the Bulgarian belladonna while five of the idiopathic type tolerated only an average of five and one-half drams (7.57 mg.) three times a day. The single patient with posttraumatic Parkinsonism tolerated 12 drops (19.2 mg.) three times a day of the atropine sulphate solution, two drams (3.39 mg.) three times a day of the American belladonna and 10 drams (13.3 mg.) three times a day of the Bulgarian belladonna. The patient with Parkinsonism due to syphilis tolerated 26 drops (41.6 mg.) three times a day of the atropine sulphate solution, seven and one-half drams (12.7 mg.) three times a day of the American belladonna and five and one-half drams (7.1 mg.) three times a day of the Bulgarian belladonna.

It will be noted that the patients with chronic encephalitis tolerated more of each of the three drugs than did the idiopathic or arteriosclerotic type and as a rule they exhibited greater improvement. This was in line with similar observations by other investigators and it was felt that the superior results obtained in patients with chronic encephalitis were due to their ability to take more of the belladonna preparations.

After these patients had been treated for the initial three-month period they were allowed to continue with their drug of choice and observations were made for a total period of from four months to almost three years. At the completion of their observation the most effective of the three drugs was noted. Among the twenty patients with chronic encephalitis, seven declared that the atropine sulphate had been of greatest

benefit, six were undecided between atropine sulphate and Bulgarian belladonna, three were definitely in favor of Bulgarian belladonna, three were not treated long enough to allow an evaluation and one preferred the wine of American belladonna. Of the eight patients with idiopathic Parkinsonism, four favored the atropine sulphate, three were undecided whether any of the drugs were of benefit and one was not treated long enough. Although these were all subjective impressions it can be stated that objectively the clinical improvement went hand in hand with the patients' preferences.

It was apparent, therefore, that of the twenty-eight patients with Parkinsonism due to either encephalitis or arteriosclerosis, 11 (39.3 per cent) seemed to benefit most with atropine sulphate while six (21.4 per cent) thought the Bulgarian belladonna and atropine sulphate were equally beneficial. In only three (10.7 per cent) patients did the Bulgarian belladonna seem definitely to be the most effective and in only one (3.5 per cent) was the American belladonna the drug of choice. The results in the remaining seven (25 per cent) patients could not be determined.

Signs and symptoms of toxicity occurred in the use of all three drugs, were common to all three and were no different than those reported in the literature. The most common of these were blurring of vision due to pupillary dilatation, dryness of the mouth, urinary disturbance and decreased sweating. Less frequent toxic signs included nausea and vomiting, dysphagia, parched and purple lips, stiff tongue, pallor, rash, staggering gait, diplopia, headache, paresthesiæ, burning sensation in the stomach, poor appetite and loss in weight, a feeling of faintness, diarrhea, increased nervousness, restlessness and visual hallucinations with mental confusion.

The signs of improvement were subjective feelings of increased well being and decreased pains in the extremities along with objective evidence of decreased rigidity, salivation and involuntary movements as well as improvement in behaviour, speech, use of hands in carrying out skillful acts, facial expression and gait. They moved about faster and exhibited some increase in pep. The oiliness and acne of the face so common in chronic encephalitis was markedly improved in one case. As mentioned before, the patients with chronic encephalitis exhibited the most improvement and although the degree of

improvement was sufficient (sometimes most satisfactory) to warrant the continuation of this type of therapy, the remarkable improvement reported by some investigators was not observed.

Summary and Conclusions

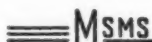
From this study involving a small series of patients it was apparent that the ordinary atropine sulphate 0.5 per cent solution was as good or better than the wine of Bulgarian belladonna in the treatment of Parkinson's disease and that the wine of American belladonna was the least effective. The signs of toxicity and signs of improvement corresponded with those previously reported in the literature. Of the two principal types of Parkinsonism, that due to encephalitis responded best to the various belladonna preparations.

It must be strongly emphasized, however, that the treatment of Parkinson's disease is truly an individual problem and that in any study of this sort one must take into consideration the type and severity of the disease, the type of medication, the variations in preparation, alkaloidal content and deterioration of the drugs used and a consideration of the contraindications. Changes in weather cause an alteration of dosage of these preparations since hot weather usually brings on toxic symptoms in a previously well-regulated patient. Other drugs such as benzedrine (amphetamine sulphate), hyoscine and stramonium

influence certain phases of the Parkinsonian syndrome but they were not considered in this study. However, they should be used when indicated. Finally, one must not be too optimistic with any initial success in the treatment of these patients because quite often, for no apparent reason, they will develop toxic symptoms later, necessitating a reduction in the amount of drug which is usually followed by a recurrence or increased severity of symptoms. All of these observations indicate the complexities in the treatment of the Parkinsonian syndrome and one must experiment with various combinations of the drugs mentioned and then stand ready to change any combination and dosage as the occasion requires.

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ETHER AS THE ANESTHETIC OF CHOICE IN PROLONGED OPERATIONS

On a certain occasion after I had removed the greater portion of the lower jaw as a sequestrum, walking back into the operation room after washing my hands I noticed a swelling under the chin which indicated that there was a pocket which required external drainage. The ether anesthetic had been stopped for some time so I had the attendants hold him firmly while I made a quick incision, expecting the patient to try to jump off the table, but he did not budge. I was greatly impressed with this fact but attached no particular importance to it until some years afterward when I had occasion to explore the right cerebral cortex, turning down an osteoplastic flap and opening the dura. I remember feeling that I wanted to be sure that this patient did not get too much anesthetic, so I instructed the anesthetist, who was giving drop ether on an open mask, to get the patient completely under surgically and then to stop the anesthetic until she heard further from me. I got busy with my operation and forgot all about the anesthetic and when I got through I found out that I had been working for over two hours and that the patient had received no more anesthesia after once being deeply anesthetized. I began to feel then

that there must be something different about ether, and now and then instructed the anesthetist to stop the anesthetic sometime before the end of the operation. More recently, I have been making it a rule in operations that I expected to last for much more than an hour to have the anesthetic discontinued after giving it for 45 minutes or one hour. I found that we could work for at least another hour without difficulty. Still more recently, I cut the period of anesthesia after the operation was started to 20 minutes and later again to 15 minutes, and I found that we could still continue to operate for an hour or more after the anesthetic had been stopped. I further found that we could continue to operate while the patient recovered consciousness to the extent of being able to converse with the operator or the assistants during the operation.

The ether is administered on the open cone in the usual way, deep surgical anesthesia induced and maintained during the period of administration. In patients who object to ether, with or without their knowledge ethylene has been given till the patient becomes unconscious, then the ether started. The mask has in some instances been left on the patient's face, in others removed.—JOSEPH A. DANNA, M.D., New Orleans *Medical and Surgical Journal*, September, 1942.

We Will March With Our Soldiers

AS physicians, our duty to our country is clear. If ten millions of our youngest, strongest and healthiest men are to march against our enemies; if they are to fight in all parts of the world, they will not march or fight alone. For every thousand soldiers in our army, six or seven able-bodied well-trained physicians, equipped with the knowledge of modern medicine and armed with every means for maintaining health, combating sickness and attending the injured, will accompany them. With an armamentarium for modern surgery: plasma and blood to combat shock; sera, vaccines, sulfonamides and other useful drugs to prevent infections, the salvage of human life will be the greatest recorded in history. Every red blooded American physician will want to play his part in this conflict.

Civilian life with its numerous activities must go on. For every man at the front many must remain at home to maintain our services, to supply the instruments of war and to protect our home front. All young physically fit physicians are needed for the military services and the older doctors of medicine who were planning on retirement, or slackening their medical activities, must take on an additional load of civilian practice. Many must discard their vacations, hobbies and those periods of well-deserved leisure which they have formerly enjoyed.

Today our civilization is in great peril. As in the past, the medical profession is prepared to give its full strength to the winning of the war. A long tradition of unselfish service to mankind is inherent in our profession. We will serve our country. We will march with our soldiers; we will bring every available means of healing and comfort to our fighting forces; we will conserve life and health; we will free our people of the fear of sickness and injury and from any lack of adequate medical care.

Howard H. Cummings

President, Michigan State Medical Society



President's



Page



★ EDITORIAL ★

THE EDITOR

■ Major Roy Herbert Holmes has reported to Fort Hulen, Texas, for Army service. He has been editor of THE JOURNAL of the Michigan State Medical Society for three years, and these have been busy ones. We shall all miss him, but wish him godspeed and the satisfaction of a well-done job even though it be exacting and irksome.

We all know how efficient and creditable Major Holmes was as Editor and Councilor, and know he will prove just as good an Army officer.

For the second time War has called the editor of this JOURNAL into the service of the Army. It was Editor Warnshuis in 1918-19 and now Editor Holmes. The mantle now falls temporarily upon the chairman of the Publication Committee.

INTERNS AND BASIC SCIENCE

■ Some months ago the Michigan State Board of Examiners in Basic Science notified the Attorney General, "This Board has found that certain individuals are interning in various institutions in the state without obtaining certificates" from the Basic Science Board (Ed.), and asked his opinion as to "whether interning constitutes practicing the art of healing within the meaning of the above statutory provision," *Section 8 of the Basic Science Act, being Act No. 59, Public Acts of 1937.* (Ed.)

The Attorney General on July 13, 1942, gave the opinion that "interning does not constitute practicing the art of healing within the meaning of the Basic Science Act."

In the opinion it is stated that: "It is apparent that if those serving internship were held to be practicing healing in violation of the Basic Science Act, they would also of necessity be practicing medicine * * * in violation of the statute regulating those professions. On the other hand these same statutes and the regulations issued in pursuance thereof compel internship as a condition precedent to licensure."

UNITED STATES PUBLIC HEALTH SERVICE

■ Several questions have been asked THE JOURNAL as to the relationship of the USPHS to

the armed forces during the war and to the practicing physician. *The Journal of the AMA*, August 15, 1942, contains a comprehensive statement by Surgeon General Parran on, "Medical Offices in Public Health Service."

It should be emphasized that physicians in general practice as well as specialists are eligible for examinations for appointment in the commissioned corps of the Public Health Service. The ranks and pay of this commissioned medical corps are similar to those in the Army and Navy medical corps. The base pay and title of each grade is as follows: Assistant Surgeon \$2,000; Passed Assistant Surgeon \$2,400; Surgeon \$3,000; Sr. Surgeon \$3,500; Medical Director \$4,000; together with additional compensation for subsistence and housing.

MASSACHUSETTS MEDICAL SERVICE

■ As an answer to the threat of socialized medicine a plan for medical service has been inaugurated by the Massachusetts Medical Society to go into effect early this fall. It is designed to care for ninety-two per cent of the state's wage-earning families. In a supplement to *The New England Journal of Medicine* it is stated, "Massachusetts * * * has been saved a trying and costly experience by the trial and error methods in operation in other parts of the country. Michigan, for example, started with a complete medical care contract, but experienced such financial difficulties and paid doctors so inadequately that it is starting afresh with a partial coverage contract and planning to build again later to complete coverage. * * * The probable popularity of the plan was indicated by the fact that 250,000 Michigan families have availed themselves of the new and sound contract for partial coverage."

RED CROSS BLOOD PROCUREMENT PROJECT

■ Expansion of the Red Cross blood procurement project from an original 900,000 donors during the current fiscal year to a minimum of 2,500,000 has been requested by the Surgeons

EDITORIAL

General of the Army and Navy, the Red Cross has announced. Blood collected in this project is processed for use in transfusions by the armed forces.

This almost threefold increase will require approximately 50,000 volunteer donations a week. The eighteen blood donor centers operated by Red Cross chapters in the more populous areas of the country are rapidly completing plans to increase their quotas, and a few additional centers will be opened to handle this augmented number of donations. In addition to dried plasma, blood collected is to be processed into human serum albumin, also for use in transfusions. The Navy is particularly interested in this serum because it requires less storage space than plasma.

Unlike dried plasma, serum albumin, when prepared for shipment, is in solution. Nothing need be added before the transfusion is given. A unit of the serum consists of 25 grams of albumin dissolved in 100 c.c. of physiological salt solution.

In announcing the expanded program, the Red Cross explained that until now it has had to restrict quotas of the donor centers because of the limited capacities of processing laboratories. However, several additional laboratories are expected to be participating in the program in the near future, and the capacity of those already processing blood is being expanded. The combined annual capacity of processors is expected soon to reach a total of at least 2,500,000 pints of blood, and may even go as high as 3,000,000, Red Cross officials stated. The eighteen donor centers participating in the national blood procurement project are operated by Red Cross chapters in New York, Philadelphia, Baltimore, Rochester, Buffalo, Boston, Brooklyn, Cincinnati, Cleveland, Chicago, Detroit, Pittsburgh, Indianapolis, St. Louis, Milwaukee, Los Angeles, San Francisco, and Washington, D. C.

COMPARISON

■ Appropriately this month in our Half Century Ago department we copy a paper by Dr. J. H. Carstens, father of our retiring president, published fifty years ago. What list of fifty-three abdominal operations, today, by any surgeon would list one appendectomy?

OCTOBER, 1942

Say you saw it in the Journal of the Michigan State Medical Society



Aerial View

The Sawyer Sanatorium offers facilities for the treatment of patients suffering from Nervous Diseases, Mental Disorders, Psychoneuroses, including Involutional Psychoses; Arterio-Sclerotic, Senile and Adolescent Mental Disorders; Paralyzes; Cardiac, Cardio-renal and Hypertensive Nervous Conditions; and the various manifestations associated with them.

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THANKS

The Council of the Michigan State Medical Society has placed on its minutes a vote of thanks to all who contributed to the success of the State Society's 1942 Annual Meeting—the Postgraduate Conference on War Medicine.

The Council is grateful to the sixty-two Guest Essayists, the Ubiquitous Hosts of our out-of-Michigan speakers, the Chairmen and Secretaries of the General Assemblies and of the Sections, the Discussion Conference Leaders, the Monitors of the Sections and of the Discussion Conferences, the Press Relations Committee, the Hospitality Committee, the Grand Rapids Arrangements Committee, the Exhibitors, the newspapers for many valuable columns, the Grand Rapids Convention Bureau, our friends who sponsored lectures at the meeting, the Kent County Medical Society, and all who by their help and generous sacrifice of time made the meeting such an instructive and enjoyable conference.

"AMERICA IS PROUD—"

The press of the nation is unanimous in its praise of the medical profession's patriotism and its war work. Every week, additional newspaper editorials, commending the work of doctors of medicine in the armed forces and in civilian medical defense are being written. Typical of the words of wide-awake editors is the following extract from a long, eulogistic editorial in the Flint JOURNAL of August 23:

"America is proud of the work its medical services are performing on the field of battle, proud of the fact that scientific and technical advance has been made in the business of saving men's lives, building up their bodies in the face of the evil inventions that destroy. Had not medicine, nursing, pharmacy, sanitation kept pace, or more than kept pace, with the destructive arts, the situation in a world totally at war would be almost past comprehension.***

"Our medical profession and services connected with it are meeting the test—probably the greatest test of skill, stamina and courage in the history of medicine. And the men in the medical corps, from the buck private to the high ranking

officer, are soldiers in the true sense of the word, for they face much the same danger as the fighting men in action."

MEMBERSHIP FIGURES UP

The membership of the Michigan State Medical Society, as of September 19, 1942, stood at 4,570, the greatest total in the history of the Society for that date.

The record for the past seven years stands as follows:

	1941	1940	1939	1938	1937	1936	1935
7/31	4,403	4,401	4,255	3,958	3,757	3,457	3,410
12/31	4,621	4,527	4,425	4,205	3,963	3,725	3,653

WILL HEALTH OFFICERS PRACTICE MEDICINE?

The suggestion that rural health officers "help out during the war emergency" by practicing curative medicine (while continuing to serve as health officers) in those areas where medical enlistments in the Army and Navy are throwing double burdens on the remaining practitioners, was presented to The MSMS Council recently. Hundreds of patriotic doctors in this state have enlisted in the armed forces. Has the government suddenly discovered that these "inconsiderate" physicians have left a helpless clientele of sufferers without adequate medical service, which condition must be corrected by its rushing to Michigan scores of practitioners who are paid by the government? Will the medical profession, thanks to its patriotism, be accused of "falling down on the job"? Will official rules, called "emergency medical measures," support the new order so that the medical soldier returning to his practice will find that he must serve his people by taking a governmental job, or else?

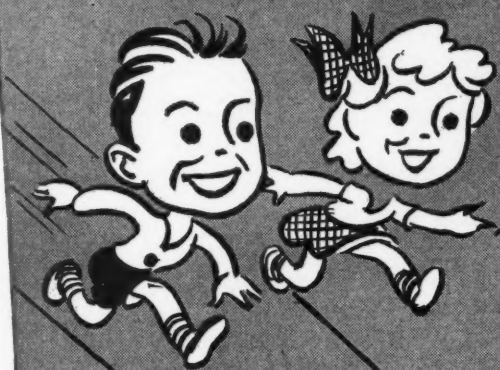
Can this be the entering wedge of governmental practice of medicine?

CIVILIAN OFFICES OF MEDICAL SOLDIERS

The Soldiers' and Sailors' Civil Relief Act contains no provision that undertakes to give assurance to a physician who enters military service

(Continued on Page 881)

IN OTHER WORDS—APPLES ARE



**GOOD
TO EAT**

1849 Mercersburg Review Says This About Apples:

"What plumpness of shape! What richness of tints! What deliciousness of breath! How much has it improved on its own blossoming! How far superior to the rose!"

Today, we praise apples in much plainer language. We know more about their health-giving, nutritive value. We realize that they are not only good to eat . . . but good for us. A valuable source of calories, apples contain Vitamins A, B, C and G, as well as much needed minerals . . . calcium, phosphorous, iron, magnesium. They furnish pectin, non-irritating bulk. They are easily served in a wide variety of ways, both raw and cooked, and should be an important part of every person's diet.

MICHIGAN STATE APPLE COMMISSION
LANSING, MICHIGAN

Nature Smiles on **MICHIGAN Apples**
FOR JUICE . . . FLAVOR . . . HEALTH

WEHENKEL SANATORIUM

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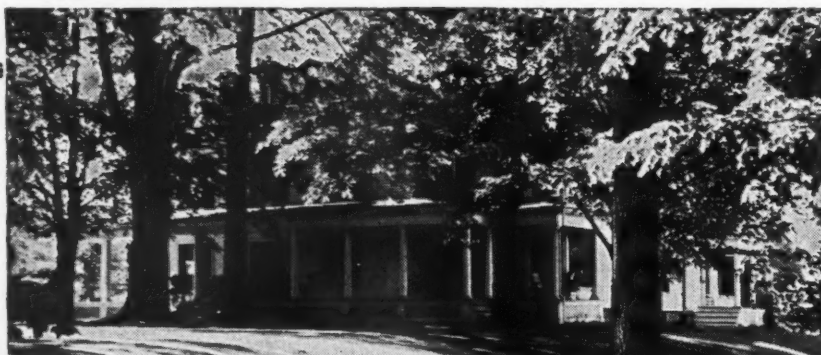
MICH.

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Sanitarium Hotel Accommodations

(Continued from Page 878)
that his office location will be available when he returns to civil life. Of course, if the physician pays his office rent during his absence, he will be assured of the same location after his discharge. Otherwise, unless the physician makes some special arrangement with the building company, or procures some other doctor of medicine to occupy the office space under an agreement to relinquish it at the termination of the military service of the first physician, no way exists that a physician going into military service may have any assurance that, when he returns, he will be able to obtain the same space for office purposes that he occupied prior to entering military service.

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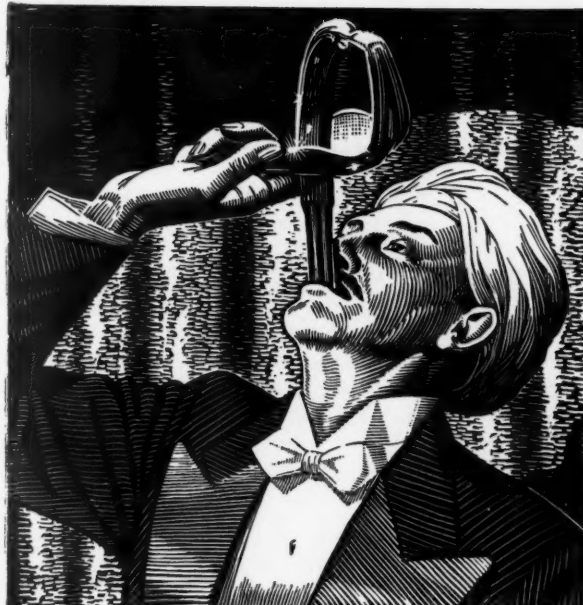
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MICHIGAN'S DEPARTMENT OF HEALTH

H. ALLEN MOYER, M.D., Commissioner, Lansing, Michigan

Succinyl Sulfathiazole Helps Curb Dysentery

A new sulfa drug, succinyl sulfathiazole, was used successfully in treating dysentery during an outbreak in Eloise hospital and infirmary recently. Five deaths occurred among seventy-two cases. Two kitchen employes, a food handler and a dishwasher, were discovered to be carriers. Treatment of the patients was under the direction of Dr. Charley J. Smyth, medical director of the William J. Seymour hospital, a division of Eloise.

The mobile laboratory of the Michigan Department of Health was used in examining stools of 328 food handlers. Dr. T. M. Koppa, director of the Department's bureau of epidemiology, Dr. F. S. Leeder, Department epidemiologist, and Dr. T. K. Gruber, medical superintendent of Eloise, collaborated in bringing the outbreak under control.

New All-Time Twelve-Month Typhoid Low in Sight

Known "typhoid carriers" in Michigan now total 275, the Michigan Department of Health having added twenty-one to the list this year. Unceasing efforts of the Department's bureau of epidemiology to identify all carriers is credited in large measure for the steady decline in typhoid cases in recent years. Four cases of typhoid reported for Michigan during the first eleven days of September contrasts with the seven-year median of sixteen for the period and unless a typhoid outbreak occurs in the closing days of September a new all-time twelve-month low may be recorded in 1942. Forty-five cases were reported through September 11, this year.

Polio Incidence So Far This Year Low in State

Michigan's infantile paralysis incidence to date this year (ninety-four cases through September 11) is low. August, September and October are the three months when most cases are likely to develop, on the basis of records of other years kept by the Michigan Department of Health. In August, this year, forty-four cases were reported. Sixty cases were reported in August, 1941, and the seven-year median for the month is 102. Seventeen cases developing during the first eleven days of September, this year, compare favorably with the seven-year mean of seventy-six for the corresponding period.

Fact that cases reported so far are considerably below expectancy for this time of year should not encourage over-optimism, the Depart-

ment warns. Several weeks of the "danger period" remain and an outbreak of the disease can change the picture. The Department, through newspapers, is advising the public that a physician should be called immediately when slight fever, nausea and vomiting occur. Stiffness or pain in the back and neck and muscle soreness may be other symptoms, the public is advised, and the Department adds that possibility of paralysis is greatly lessened when there is prompt diagnosis and adequate treatment.

Seventy-seven respirators located in twenty-eight Michigan counties now are available to physicians.

Health Science Groups Urge Tests for Youths

Intensive check-ups of physical condition of older boys in Michigan's secondary schools with the beginning of the fall term are recommended by health science groups of the state. Percentages of under-par youths disclosed in NYA and Selective Service examinations have aroused concern and the bureau of local health services of the Michigan Department of Health is acting as coördinating agency with full-time district and county health departments in working out details of examinations in areas served by the last-named groups.

Ventilation of Kitchens Adequate Bomb Safeguard

Advice to householders concerning precautions to be taken against escape of refrigerating gases in event of bomb damage, released by the Michigan Department of Health, is that opening of kitchen windows and closing of kitchen doors in air attacks is sufficient. It is pointed out that only a direct hit by a bomb on the refrigerating unit itself would be likely to release the refrigerant in a confined space with possibility that the gas would affect humans and that the suggested precaution should be sufficient safeguard.

Workers Are Protected Against Radium Effects

Safeguards for workers who apply radioactive luminous compounds to instrument dials in Michigan plants holding war contracts are prescribed by the bureau of industrial hygiene of the Michigan Department of Health. The bureau demands preemployment and periodic medical examinations and education of workers in safe methods of handling the compound, insistence on thorough scrubbing of hands before food is touched, performance of the dial-painting work under glass-windowed hoods from which air is pulled

IN MEMORIAM

by suction and safe disposal of emptied containers. Reserve supplies of compound must be stored in lead-lined cabinets away from workers and only small quantities are issued to operators at a time. Workers are not permitted to touch brushes to lips to fashion "points" for the application of the compound.

Safe methods of handling the compound, prescribed by industrial hygiene engineers, have been worked out by the National Bureau of Standards of the U. S. Department of Commerce and by the U. S. Radium Corporation. Radium poisoning claimed lives of many workers during and after the last World War.

Administration Building is Inspected by Public

Several hundred visitors from all sections of Michigan, including many physicians and health officers, inspected the new administration building of the Michigan Department of Health when open house was held Thursday, September 10. The new building on Dewitt road, opposite the state laboratories on the northwest edge of Lansing, provides space for all bureaus of the Department except laboratory offices which remain in their present location. The structure cost \$135,000 of state money plus a \$93,000 WPA contribution of labor and materials. Among visitors during the informal opening was Abner E. Larned of Detroit, state WPA administrator.

The 1942 Clinical Congress of the American College of Surgeons, originally scheduled for October at the Stevens Hotel, Chicago, which was taken over August 1 by the United States Army Air Corps, will be held in Cleveland, with headquarters at the Cleveland Public Auditorium, from November 17 to 20, according to an announcement from the College headquarters in Chicago.

IN MEMORIAM

O. S. Armstrong of Detroit was born in 1851 and was graduated from the University of Michigan in 1877. After graduation he came to Detroit and established himself in practice where from 1877 until his retirement in 1941, he was in uninterrupted practice. He was President of the Wayne County Medical Society in 1892 and 1893 and during the period of 1888-1894 was professor of anatomy and diseases of women at the Michigan College of Medicine. Doctor Armstrong until his retirement was the oldest practicing physician in Michigan and the oldest living past-president of Wayne County Medical Society. He would have been 91 years old on August 30. Dr. Armstrong was elected to Emeritus membership in the Michigan State Medical Society in 1937. He died August 13, 1942.

OCTOBER, 1942

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Don M. Campbell of Detroit was born in 1865 in Wardsville, Ontario, and was graduated from the Detroit College of Medicine and Surgery in 1885. He also studied at Trinity Medical College in Toronto, the Royal College of Surgeons and the Royal College of Physicians at Edinburgh. He did postgraduate work in the eye, ear and throat hospitals of London, Glasgow and New York. During World War I he examined over 5,000 American soldiers. He was on the staff of Harper Hospital until his death and formerly served as a professor of ophthalmology and otology at the Detroit College of Medicine and Surgery. He was a past-president of the Wayne County Medical Society and belonged to several national medical organizations. Doctor Campbell was elected to Emeritus membership in the Michigan State Medical Society in 1939. He died August 25, 1942.

W. C. Conley of Ironwood was born near Plymouth, Ohio, January 16, 1867, and was graduated from the University of Michigan in 1890. After practicing at Saranac he went to Ishpeming in 1897 to become assistant surgeon at the Union hospital. When he came to Ironwood in 1904 he was employed by the M. A. Hanna Company, and later he became the physician for the Republic Steel Corporation, retiring in 1936. He died July 5, 1942.

Conrad DeJong of Grand Rapids was born in Orange City, Iowa, in 1871, and was graduated from the University of Iowa, College of Medicine. He first located in Iowa City and came to Grand Rapids in 1915, practicing there until his retirement in 1938. While in practice, he had been on the staff of Blodgett Memorial, Butterworth, and St. Mary's Hospitals and the Holland U.B.A. Home. He was an Honorary Member of the Kent County Medical Society. Doctor Conrad died on June 13, 1942.

Edward Geddus Minor of Detroit was born in Chicago, Illinois, in 1888, and was graduated from the Detroit College of Medicine in 1912. Shortly after graduation, Doctor Minor began his x-ray work in the medical department of the Ford Motor Company. He was director of the x-ray department at Highland Park General Hospital since the institution was opened in 1921. He was a member of the Radiological Society of North America as well as many other local organizations. He died September 9, 1942.

E. D. Rice of Flint was born at Woodstock, Ontario, in 1872, and was graduated from the Detroit College of Medicine in 1894. He came to Flint after graduation and in 1900 opened the Rice Hospital. Doctor Rice practiced in Flint until his death on August 21, 1942.

★ COUNTY AND PERSONAL ACTIVITIES ★

"Amputations in War" by Colonel N. T. Kirk, M.C., Battle Creek, appeared in *The Journal of the American Medical Association* of Sept. 5, 1942.

Alexander M. Campbell, M.D., Field Representative for the MSMS Maternal Health Committee, presented an illustrated address on the "Toxemias of Pregnancy" before the Lenawee County Medical Society on September 17.

H. A. Hume, M.D., of Owosso, was elected President of the Shiawassee County Medical Society in September, to succeed E. R. McKnight, M.D., now in the armed forces. E. J. Carney, M.D., of Durand was elected Vice President to succeed J. S. Janci, M.D., who is also in service.

L. W. Shaffer, M.D., Detroit, acted as Leader for the Discussion Conference on Syphilology at the MSMS Annual Meeting, Wednesday, September 23 in place of Udo J. Wile, M.D., of Ann Arbor, who left for service in the USPHS on that date.

"Poliomyelitis Following Tonsilectomy" by Thomas Francis, Jr., M.D., and W. N. Mack, M.S. of Ann Arbor in cooperation with John A. Toomey, M.D. of Cleveland and Carl E. Krill, M.D. of Akron, Ohio, appeared in *The Journal of the American Medical Association* of August 22.

"During the War, Think Twice Before You Phone the Doctor" is the title of a placard being disseminated by Meade Johnson and Company. This clever card, if followed by the people, will save physicians many hours of valuable time. The card ends with the admonition: "There's a Shortage of Doctors."

State Commissioner of Health H. Allen Moyer requested that the following important announcement be published:

Physicians leaving for Service: please sign your birth certificates before you depart, to save embarrassment to the child, its parents, and to yourself.

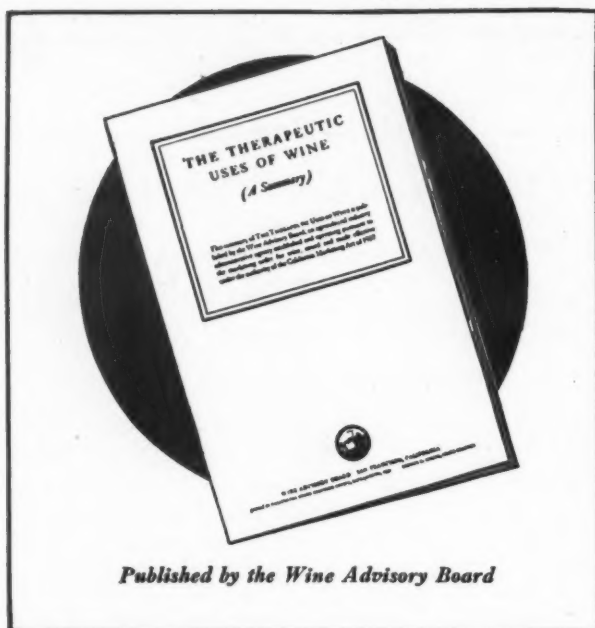
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THE THERAPEUTIC USES OF WINE

(mailed free upon request)

There has developed an interest within the medical profession that the true physiologic and therapeutic uses and deficiencies (and also the food values) of wine be authoritatively reviewed. Such a review has been prepared in monograph form by qualified and competent medical authorities and constitutes a summary of the pertinent scientific literature of present-day medicine.

The contents include sections on wine as a food, and the actions of wine on the gastro-intestinal system, the cardio-vascular system, the genito-urinary system, the nervous system and the muscles, and the respiratory system. The uses of wine in diabetes mellitus, in acute infectious diseases and in treatment of the aged and convalescent are also discussed. The value of wine as a vehicle for medication is dealt with, and an important section on the contraindications to the use of wine is included. An extensive bibliography is presented for those who may wish to pursue the subject further.

This review results from a study supported by the Wine Advisory Board, an agricultural industry administrative agency established under the California Marketing Act, and has been sponsored by the Society of Medical Friends of Wine.

Members of the medical profession are invited to write for this monograph. Requests should be made to the Wine Advisory Board, 85 Second Street, San Francisco.



Lt. Colonel Harold A. Furlong, M.C., Director of Selective Service and also Administrator of the Michigan Council of Defense, addressed the Health Committee of the Fremont Chamber of Commerce on September 28. His subject was "Health in the War and Civilian Defense Efforts."

* * *

The *USPHS* has completed a set of nine posters in a series designed to keep vital war workers at their machines through the observance of simple health safeguards. Copies of these industrial hygiene posters are available by writing E. R. Coffey, M.D., Asst. Surgeon General, Division of Sanitary Reports and Statistics, *USPHS*, Washington, D. C.

* * *

Walter L. Baumann, M.D. of Detroit completed the formal continuation work arranged by the *MSMS* Committee on Postgraduate Medical Education, and became eligible for Certificate of Associate Fellowship in Postgraduate Medical Education. Dr. Baumann's name was omitted from the list of Associate Fellows published in the September *JOURNAL*.

* * *

Open House at the new Michigan Department of Health Administration Building was held Thursday, September 10. During the hours from 2 to 9 p.m., hundreds of physicians and interested civilians inspected the new building and congratulated Commissioner Moyer and his staff on their new headquarters, located on DeWitt Road (Telephone: Lansing 4-1491).

* * *

The *National Foundation for Infantile Paralysis* is sincerely thanked for its sponsorship of the lecture "Survey of the Progress Against Poliomyelitis" presented by Don W. Gudakunst, M.D. of New York, before the Section on Pediatrics at the 77th Annual Meeting of the Michigan State Medical Society in Grand Rapids, September 25.

* * *

L. Fernald Foster, M.D., Secretary of the Michigan State Medical Society, spoke to the Grand Rapids Kiwanis Club on September 21, on the occasion of the *MSMS* Annual Meeting. His subject was "Medicine's Effort in the War."

A. C. Furstenberg, M.D., Ann Arbor, spoke to the Optimists' Club on Wednesday, September 23 on "Medical Education in Time of War."

Major C. I. Owen, M.C., Assistant Director of Selective Service in Michigan, spoke to the Grand Rapids Breakfast Club on September 23 on "The Role of Medicine in War and Civilian Defense."

* * *

"Lack of Time," the recent advertisement by Parke, Davis & Company published in all national magazines, has been quoted all over the country. The *Lapeer County Press* reprinted it in an editorial on August 12, entitled "An Editorial from an Advertisement."

READING NOTICES

The physicians of Lapeer County had reprints made of *The Lapeer County Press* editorial, and disseminated them to patients, in their waiting rooms and with their monthly statements. A timely quote from the Parke, Davis advertisement: "The best way help on the home front can be maintained during the war is for you and your Doctor to work together as a team."

* * *

COUNTY MEDICAL SOCIETY MEETINGS

Calhoun—Battle Creek, Tuesday, September 1, 1942, Speaker: George W. Schelm, M.D.

Battle Creek, Subject: "Surgical Pathology of the Ovary."

Dickinson—Iron—Iron Mountain, Thursday, September 10, 1942, Program consisting of colored movie on Thiamine Chloride Deficiency.

Genesee—Flint, Tuesday, September 15, 1942, Business meeting.

Hillsdale—Hillsdale, Tuesday, August 4, 1942, Business meeting.

Ingham—Lansing, Tuesday, September 15, 1942, Business meeting.

Muskegon—Muskegon, Friday, September 18, 1942. Business meeting.

Reading Notices

DR. HAROLD L. HANSEN JOINS WINTHROP CHEMICAL COMPANY

Dr. Harold L. Hansen, former secretary of the Council on Dental Therapeutics of the American Dental Association, director of the A.D.A. Bureau of Chemistry, and consultant to the Federal Food and Drug Administration, the Federal Trade Commission and the Council on Pharmacy and Chemistry, has been appointed administrative assistant to the president of Winthrop Chemical Company, according to an announcement by Dr. Theodore G. Klumpp, President. Dr. Hansen takes up his new duties immediately.

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There is now available for free showings before groups of physicians the first complete movie film on peptic ulcer, in color and with sound track.

The film which is entitled "Peptic Ulcer" was produced under the direction of the Department of Gastroenterology of the Lahey Clinic of Boston. The American College of Surgeons has awarded its seal of approval to the film.

Running time of the film is 45 minutes, 1,600 feet of 16 mm. film, and covers a presentation of the following problems of peptic ulcer: Pathogenesis, diagnosis, treatment, pathology, complications, including obstruction, hemorrhage, and perforation, gastric ulcer, surgery and jejunal ulcer.

Arrangements for a showing of the film may be made by writing to the Professional Service Department of John Wyeth and Brother, Inc., Philadelphia, who will provide projection equipment, screen, film, and operator for medical groups, without charge.

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CENTRAL AUTONOMIC REGULATIONS IN HEALTH AND DISEASES, With Special Reference to the Hypothalamus. Heymen R. Miller, M.D., Associate Attending Physician, Montefiore Hospital, New York City. Introduction by John F. Fulton, M.D., Sterling Professor of Physiology, Yale University. New York: Grune and Stratton, 1941. \$5.50.

Fifteen chapters, 440 pages well and clearly printed in pica type on white paper. It is highly technical but from the clinician's standpoint, dealing with the influence of pathologic morphology on the autonomic mechanism in clinical conditions. Original illustrations help with a well-planned text. Each chapter is followed by its source references.

* * *

ADVANCES IN PEDIATRICS. Editor Adolph G. De Sanctis, M.D., New York Postgraduate Medical School and Hospital; Associate Editors, L. Emmett Holt, M.D., Johns Hopkins Hospital; A. Grame Mitchell, M.D., Late of Children's Hospital, Cincinnati; Robert A. Strong, M.D., Tulane; Frederick F. Tisdall, M.D., Hospital for Sick Children, Toronto, Vol. I. New York: Interscience Publishers, Inc. 1942, \$4.50.

This volume of 306 pages consists of ten chapters by various well-known authors dealing with various diseases of children: Toxoplasmosis, Virus diseases, Chemotherapy in Infancy and Children, Electroencephalography, Vitamin K, Persistent Ductus Arteriosus and Its Surgical Treatment, The Premature Infant, Tuberculosis, Endocrinology and short abstracts. The type and technical work are excellent; the book is easily readable and valuable.

* * *

SYNOPSIS OF PATHOLOGY. W. A. D. Anderson, M.A., M.D., Assistant Professor of Pathology, St. Louis University. 294 illustrations and 17 color plates, St. Louis: C. V. Mosby Co.

This is a handy size, round cornered, flexible covered book of 661 pages well printed on good paper, in easily readable type. Paragraphs and topics are indicated in heavy type; the style easy. The subject matter is extensive and up to date, including the Pathology of Vitamin Deficiencies, and Hormones. A random search for many newer conditions found them briefly but adequately treated. A valuable handbook and quick reference.

* * *

FIRST AID AND BANDAGING. A handbook of First Aid and Bandaging by Arthur D. Belilios, M.B., B.S., D.P.H., and others. A. William Wood Book. Baltimore: The Williams and Wilkins Co., 1942. \$1.75.

Six hundred twenty-eight pages of clear print on flat surface paper with profuse good illustrating. It is written for first-aid men rather than the doctors, in easily understandable language, giving reasons and explanations. This book is published in England and the language is British.

OCTOBER, 1942

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This book clearly outlines first aid and shock treatment for injuries of the jaws, illustrates special bandages and methods of taking x-ray pictures. Anesthesia is discussed and block or conduction anesthesia favored for bone injuries of the face; formulas and details are given, with numerous pictures.

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899



HALF A CENTURY AGO

A REVIEW OF TWENTY-FIVE CONSECUTIVE CASES OF
ABDOMINAL SECTION

REUBEN PETERSON, M.D.

Grand Rapids, Michigan

The number of cases reviewed in this paper is comparatively small, and while individually they possess no extraordinarily interesting features, collectively they can, I think, be very profitably considered.

Fifteen of the twenty-five cases were performed by my colleague, Dr. Eugene Boise, and it is through his kindness and courtesy, that I am enabled to incorporate his cases into the report and consider the work done in the gynecological department of St. Mark's Hospital, as a whole and not separately. Together we have worked out a system of surgical procedure, which, at least, gives fairly good results. Each was in turn, as the case might be, either operator or assistant. Therefore, the cases can properly be considered together, which would otherwise be inadmissible had each worked separately without the assistance and advice of the other. Whenever differences of opinion arose in regard to different methods, wherever practicable both ways were given a fair trial, and the one giving the best results retained.

Dr. Howard Kelly, in reviewing the work in the gynecological department of Johns Hopkins Hospital, prefaced his article by saying that it is essential that such reports be accompanied by a description of the methods by means of which the results were obtained. Certain broad general principles are universally adhered to by all abdominal surgeons, and it is the consideration of the small details of procedure before, during, and after an operation that proves most profitable to the operator and those who care to go over his work with him. Thanks to the rapid advances of abdominal surgery during the past fifteen years, a report of fifty or more primarily successful laparotomies excites but little comment. It simply indicates that the operator has exceptionally good methods. Therefore, in this paper the technique employed will be described at some length. * * *

The tendency of modern surgery is towards simplicity in technique. Aseptic are slowly but surely being substituted for antiseptic methods. One by one the safeguards and active measures, formerly thought necessary to prevent the entrance of microbes into wounds, are being dispensed with. Lister, with a frankness which does him honor, in an address before a recent surgical congress, said:

"If, then no harm resulted from the admission day after day of abundant atmospheric organisms to mingle unaltered with the serum in the pleural cavity, it seems to follow, logically, that the floating particles in the air may be disregarded in our surgical work. And if so, we may dispense with antiseptic washing and irriga-

tion; provided, always, we can trust ourselves and assistants to avoid the introduction into the wound of septic defilement from other than atmospheric sources."

The aseptic operation, however, has only been arrived at by slow degrees and by a process of elimination of whatever found nonessential. At first, we were accustomed to boil the instruments for one-half hour, after which they were placed in a strong carbolic acid solution, where they remained throughout the operation. The needles, ligatures, and sutures were also kept in a strong antiseptic solution. The sponges were carefully washed in a 1-3,000 corrosive sublimate solution. The abdominal wound was also kept well bathed in the same solution. But gradually these precautions were dispensed with and our results have improved with the changes made. Our surgical creed now is, rigid antisepsis up to the time of making the incision and as rigid asepsis from that time on.

The patient's abdomen is shaved over a wide area the day before the operation and thoroughly scrubbed with hydronaphthol soap and hot water. The skin is then washed with ether and bathed thoroughly with corrosive sublimate solution, 1-1,000. A green soap poultice is then applied for some hours, followed by a sublimate gauze dressing, which remains in place until the operation. Just prior to the latter, this dressing is removed and the skin of the abdomen subjected to a second shaving, scrubbing, and bathing process. After a final wash with sterilized water, the field of operation may be considered as ready for the incision. A vaginal corrosive sublimate douche 1-2,000 is given the evening before and the morning of the operation, and the patient is always catheterized just before the anesthetic is administered.

The operator has one assistant, who passes the instruments, does the sponging and so forth. In order to eliminate as much as possible the introduction of septic material into the wound and abdominal cavity, a second assistant is not made use of except in very difficult operations, when his services are absolutely required. One nurse has entire charge of the sponges. It has been found safer to confine her duties to this one feature, otherwise her hands are apt to come in contact with articles which have not been rendered aseptic, and septic material in this way may be introduced through the medium of the sponges. Likewise it has been found safer for one nurse to have entire charge of the needles, ligatures, and sutures and do nothing else. A third nurse stands ready to assist the anesthetizer or do any work involving the handling of objects which are not aseptic.

(Continued on Page 902)

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SYRACUSE, NEW YORK

(Continued from Page 900)

The operating room is carefully cleansed before each operation, and every person wears during the operation a long sterilized white gown. The operator, assistant, and two nurses prepare their hands and arms as follows: They are scrubbed for ten minutes with a sterilized brush with hydronaphthol soap and as hot water as can be borne, the water being frequently changed. They are then rinsed off in hot sterilized water and immersed for two minutes in 1-1,000 sublimate solution. A final rinse in hot sterilized water, and they are aseptic and ready for use.

The sterilization of the hands by immersion in saturated solution of permanganate of potassium and oxalic acid solution, as recommended by Drs. Kelly and Welch of Johns Hopkins Hospital, has been given a fair trial, but the process has been found to exert a too violent action upon the skin, when used too frequently.

The main reliance is placed upon the thorough cleansing with soap and water and we have even contemplated doing away entirely with the immersion in the sublimate solution. In our opinion the use of the permanganate solution can be limited to those occasions where extra precautions are necessary to render the hands aseptic, as when they have previously come in contact with exceptionally septic material.

The instruments are boiled for five minutes in a solution of bicarbonate of soda, one tablespoonful to the quart of water. They are then placed in sterilized water, where they remain during the operation, except when in actual use.

The silk is placed in test tubes with absorbent cotton stoppers and sterilized for one hour in Arnold's steam sterilizer. Just before the operation they are again sterilized for one hour, removed and placed in sterilized water, where they remain until ready for use. Silk-worm gut is similarly treated. The catgut is prepared by an immersion in 1-1,000 sublimate solution for twenty minutes, alcohol one hour, and oil of Juniper wood forty-eight hours.

The sponges, after being entirely freed from grit by immersion in dilute hydrochloric acid and frequent washings in hot water, are placed in a 1-1,000 sublimate solution for twelve hours and then preserved permanently in a 3 per cent carbolic acid solution. During the operation, they are washed free from blood in sterilized hot water.

The patient's body, except the immediate field of operation, is protected by sterilized sheets and towels.

No antiseptic solution is used after the operation has once begun, unless the hands accidentally touch some object which has not been rendered aseptic. Then they are washed for a minute or two in a 1-1,000 sublimate solution and afterwards rinsed off in sterilized water.

The careful preparation of the patient is considered of prime importance. Whenever possible, this preparation is extended over a period of three or four days prior to the operation. A number of hot baths are given to insure the utmost activity of the skin, which factor may prove of the utmost importance in case

the function of the kidneys is in any way impaired by the operation.

A thorough cleansing of the intestinal tract is also highly essential. A laxative is administered at night, for three or four days, and two or three daily movements of the bowels secured. During the morning previous to the operation, two ounces of castor oil are given, which produces a number of liquid evacuations. It would seem unnecessary to lay so much stress upon this feature in the preparation, were it not for the fact that it is so often neglected and the patient subjected to an abdominal operation with intestines loaded with feces. The paralysis of the intestines following their exposure to the air during the operation, allows the bacteria from the fecal matter to pass through the intestinal wall and a septic infection supervenes, to the great perplexity of the operator, who, except in this regard may have used the greatest care in excluding sepsis.

In addition, it has been shown that a thorough cleansing of the bowel prior to the operation has much to do with preventing the nausea and vomiting following the use of the anesthetic. It has been our custom to administer twenty grains of subnitrate of bismuth the night before and the morning of the operation with a view of preventing vomiting. While this has been secured in the vast majority of cases, although ether is always used, it is questionable whether this immunity is due as much to the drug as to the thorough preparation of the intestinal tract. * * *

An analysis of the cases shows:

Chronic disease of both ovaries and tubes.....	14
Chronic disease of one ovary and tube.....	4
Pyelo-nephritis, enlarged mesenteric glands.....	1
Old ileo-coecal abscess with chronic peritonitis.....	1
Haematosalpinx.....	1
Simple ovarian cysts.....	2
Suppurating ovarian cyst.....	1
Abscess, both ovaries and tubes.....	1
Total.....	25

The following associated conditions may be noted:

Retroversion (rectified in each case by hysterorrhaphy).....	6
Vesical calculi.....	1
Parovarian cyst.....	1
Ventral Hernia following operation.....	2

Of the twenty-five cases, there were two deaths, one of these (Case 8) had suffered for a year with absorption of pus from an abscess in the neighborhood of the appendix. The operation was undertaken as a last resort, the friends being warned that the case was desperate and her chances of recovery poor. The whole pelvis was a mass of adhesions and the pelvic organs almost indistinguishable. An abscess in the region of the appendix was opened but it was found impossible to remove the sac containing the pus, and the patient died of sepsis and exhaustion on the third day after the operation.

The second patient (Case 21) was also in a weak condition from septic absorption at the time of the operation. She entered the hospital with acute pelvic peritonitis from double pyosalpinx and abscess of both ovaries. At entrance she was delirious, with a high

(Continued on Page 904)



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NOVEMBER, 1942

Say you saw it in the Journal of the Michigan State Medical Society

903

(Continued from Page 902)

temperature and frequent chills. Unsuccessful attempts were made to improve her condition before the operation, which was undertaken as a last resort, at the earnest solicitation of the patient's friends. Both ovaries and tubes were enucleated from the mass of dense adhesions binding them to the adjacent organs, but the patient proved too weak to stand the shock of the operation and died within twenty-four hours. The remaining twenty-three cases recovered.

Under the heading "Indications for Operation" have been noted, first: the macroscopical appearances of the diseased organs; second, and most important to the patients, the main subjective symptoms of the disease.

Naturally, the greatest interest attaches itself to the cases of oöphorectomy, since numerically they comprise over two-thirds of the entire number of cases.

In chronic disease of the appendages, four things may well be considered:

1. The extent and chronicity of the disease.
2. The probability of its being cured by other than surgical means.
3. The chances of immediate recovery from the operation.
4. The chances of ultimate recovery.

The surgeon must judge each case separately, and neither ignore nor give undue weight to the warnings of a certain class of self-styled medical gynecologists, who seem to think that the gynecologist who uses a knife for the relief of his patient's sufferings is necessarily devoid of conscience, and is simply seeking to increase the number of his operations, irrespective of the welfare of his patients. The operation may have been abused in times past, and may be performed now when the conditions present hardly justify it, but this does not afford ground for its wholesale condemnation. This opposition to the operation has undoubtedly been of value in checking the too hasty resort to the knife, but while this may be true and the reaction necessary to determine the exact position of the operation in surgery, the end is only prolonged by unjust denunciation of the procedure. No one, who has watched cases drag along month after month under local treatment and after partial improvement relapse again from some slight cause, can help being struck by the difference where these same cases are treated surgically. It is difficult, indeed, to be convinced, when one sees his patients restored to health in a very few months after the operation, that unjustifiable means have been employed to bring about this result.

Our patients surely have certain rights of choice. The majority of American women cannot and do not lead lives of idleness. If, then, a working woman, suffering for years with disease of the appendages, prefers the chances of recovery minus those organs to a long drawn-out course of local treatment, with no surety of success in the end, the surgeon is bound to consider and respect her wishes. If the organs are diseased and the circumstances demand their removal,

no sentimentality about the "unsexing of women" should stay his hand.

The main difficulty lies in the ability to determine what cases can be cured finally without resort to the knife, and not to prolong the sufferings of those who must eventually submit to an operation in order to obtain relief.

The dangers of the operation with a good technique are small, and the chances of ultimate recovery are, to say the least, as good as by the treatment with electricity, tampons, massage, etc., and the patient is saved many months of suffering, and is not so liable to relapse.

In none of the eighteen cases, fourteen of double and four of single oöphorectomy, was an operation advised without a careful consideration of all the conditions present. In a majority of cases, local treatment in the way of hot douches, glycerine tampons, intra-uterine applications and, in some cases, electricity, had been given a fair trial and had failed to give relief.

The tubes in nearly all the cases were enlarged and showed evidences of catarrhal salpingitis. The ovaries, except in a few, where they were small and cirrhotic, were enlarged, prolapsed, and in varying degrees of cystic degeneration. The removed organs have been preserved in alcohol, and the microscopical appearances will be noted at some future time. * * *

Menstruation has ceased in all the cases, seventeen in number, where both ovaries and tubes were removed. This does not seem to coincide with the results reported by other operators, who find that menstruation persists in 14 per cent of all cases where both ovaries and tubes have been removed. Possibly the fact that we were very careful to remove every particle of the ovarian tissue may afford some explanation of our results, although, of course, the number of cases is too small and the time since the operations too short to draw any very general deductions.

In the six cases where retroversion existed as a complication, the uterus was replaced and suspended from the abdominal wall by passing a large sized cat-gut ligature around each ovarian ligament, then through the peritoneum, muscles, and fascia. The needle was then passed through the same tissues in the reverse order and the free ends tied within the abdominal cavity. The anterior surface of the fundus was always slightly scarified before the abdominal wound was closed. These six cases have been recently examined, and in every instance the uterus is in good position. While it is impossible to predict as to relapses, up to the present time the results have proved most gratifying. * * *

A study of the temperature curves in abdominal cases is always profitable. Any errors of omission in the technique of the operation will be indicated by an increase of the body temperature. Drs. Robb and Ghiskey, of Baltimore, in a recent article, have shown the impossibility of making wounds entirely free from bacteria. But while some forms are comparatively harmless and their presence can be practically ignored,

(Continued on Page 906)

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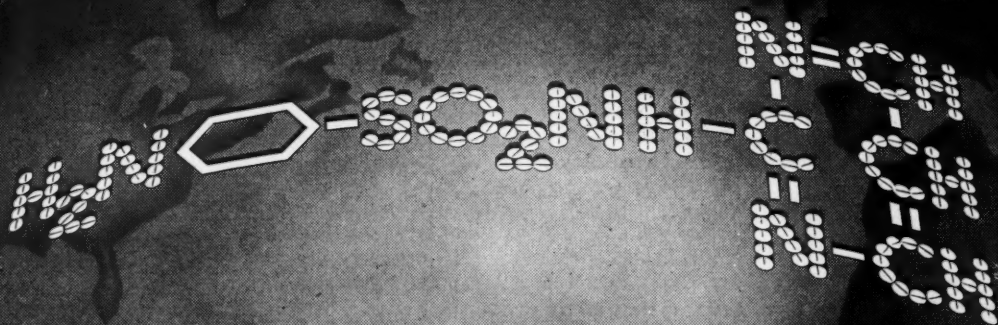
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(Continued from Page 904)

other forms are productive of much mischief, and a rise of temperature is always an accompaniment. Hence, it behooves the operator to carefully follow his temperature curves, both singly and collectively, and if, in a series of cases, the rise is above what may be considered normal he should look to his technique for a cause and change it accordingly.

This we are constantly doing, for we consider that ten out of twenty-five cases is by far too small a proportion of normal temperatures, considering the absence of complications. Besides the ten cases where the temperature did not reach 100°, there were eight where it never reached the 101° mark. In the remaining seven cases, it went beyond this point.

In connection with the subject of temperature curves, it is advisable to consider the question of drainage, and it would seem as if here were an explanation of our failure to secure more normal temperatures.

Drainage was employed in but two cases, and then only because of their intensely septic nature. We have depended, and in our opinion in many cases with too much confidence, upon the absorptive power of the peritoneum to carry away the blood and serum poured forth after an operation. While this can safely be done in many cases, where no adhesions have existed, in other cases the risk that is run in overtaxing the peritoneum is shown by a rise of temperature and an increase in the pulse rate. Hence, the difficulty of deciding which cases can be safely left undrained leads us to use the drainage tube more, rather than less frequently.

There is no one mode of procedure in cases of abdominal section which affords so much opportunity for the exercise of good judgment as the use of the drainage tube. While improvements in the method of caring for the tube have, to a great extent, done away with its dangers, it must necessarily always be a cause of anxiety, on account of its affording a direct communication between the external atmosphere and the peritoneal cavity.

It is because of this danger of sepsis that many operators go so far as to say that no case should be drained. This surely would seem an extravagant position to assume upon the question.

Whenever pus is met with in the abdominal cavity, it is safe to drain.

Moreover, while the normal peritoneum may be able to dispose of the blood and serum within the abdomen, its absorptive powers may be so seriously impaired by chronic inflammation, that it will, in its crippled condition, be unable to perform this function. Hence, a drainage tube should always be employed in the presence of adhesions.

Drainage may also prove of great value where the skin and kidneys are unable, for any reason, to perform their functions, by markedly lessening their labors. Hence, the necessity of a careful examination of the urine and a painstaking preparation of the patient before an operation.

The care of the drainage tube should never be left to any except trained assistants. Otherwise the intro-

duction of septic material becomes inevitable, and the drainage tube will be unjustly held responsible for failures which should have been ascribed, not to its use, but to the lack of care in its employment.

The danger would seem to lie in drawing too hasty conclusions from a succession of cases where the tube could be dispensed with, and neglecting to drain the next case, where it is urgently called for. At least, such has been our experience, for a dread of using the drainage tube undoubtedly caused us to jeopardize the life of a patient in a more recent case, where the outcome showed conclusively that drainage was imperatively demanded.

There were stitch-hole abscesses in but four of the twenty-five cases. Three of these occur among the first seven cases, where silk was used to suture the abdominal wound. In the remaining eighteen cases, sterilized silkworm gut was used. Only one stitch-hole abscess occurred, Case 12, and here the infection can be ascribed not to the stitches, but to the contamination of the wound by the contents of a suppurating ovarian cyst.

Silkworm gut is an ideal suture, for it is easily sterilized, pliable, and nonabsorptive. It is our custom to use this suture everywhere, except within the abdominal cavity.

The abdominal sutures are passed two or three to the inch through the skin, subcutaneous tissue, fascia, muscles, and peritoneum, and reversing this order, through the other side. Great care is taken to see that the retracted fascia is drawn towards the central line before the sutures are passed. Neither the peritoneum nor the fascia are stitched separately, the single suture, with the precautions noted above, apparently accomplishing a strong union of the parts.

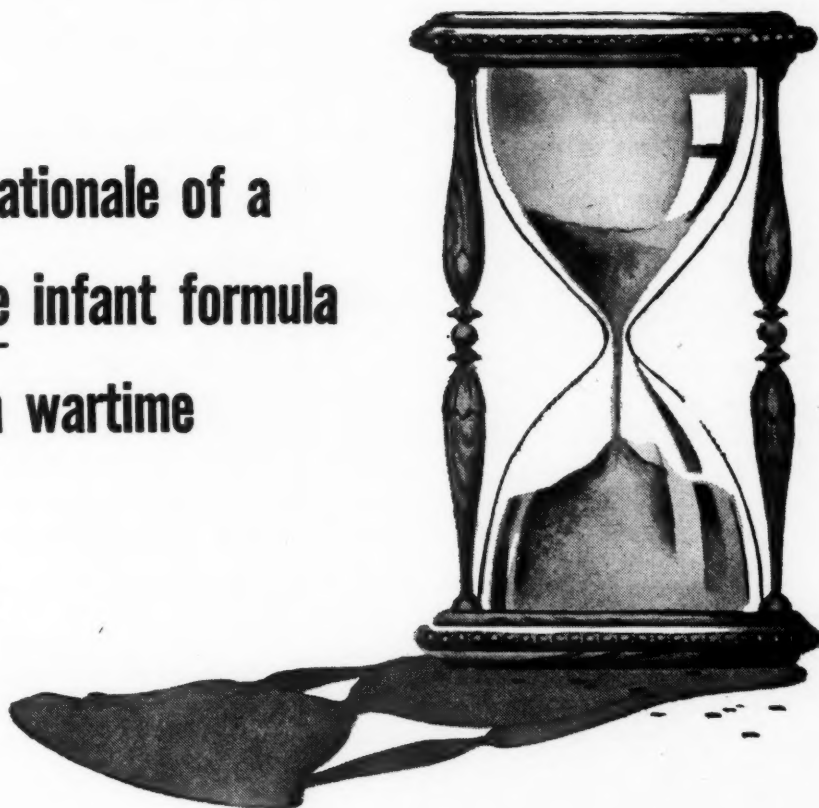
Two hernias have resulted, Cases 6 and 7. In both of these the wound suppurated. Case 7 subsequently reentered the hospital and the hernia was operated upon by Edebohl's method, the object of which is to unite the split muscles without opening the peritoneal cavity. The wound healed by first intention, and the patient is now perfectly well.

The abdominal wound, before the dressings are applied, is covered with a thick layer of powder of iodoform and boracic acid (1-7). This is not used because of its antiseptic, but because of dessicative properties. The firm crust thus formed over the stitches effectually protects the wound from the invasion of any extraneous material. Over this is placed a layer of sterilized gauze and sterilized absorbent cotton. The entire dressing is held in place by a sterilized gauze spica bandage, which remains undisturbed until the seventh day, when the stitches are removed.

Nothing is administered by mouth for the first twenty-four hours, except occasional sips of hot water. The bowels are moved on the second day by repeated doses of Epsom salts, when the stomach can retain them, or, if this be impossible, by repeated small doses of calomel, followed in a few hours by a turpentine enema.

We have had to learn the lesson of the bad effects
(Concluded on Page 918)

The rationale of a complete infant formula in wartime



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There has never been a greater need than now for the physician to seek out and use every possible time-saver.

Such a timesaver is Biolac.

Biolac formulas take practically no time to compute, because Biolac provides *completely* for *all* nutritional needs of the normal infant except vitamin C. There are *no extra* formula ingredients to be calculated.

Since Biolac requires only simple dilution with boiled water, as you direct, the possibility of formula contamination or accidental omission of

ingredients by mothers is minimized. You are assured that the baby will get *all* the nutritional elements you prescribe . . . in amounts equal to or exceeding recognized optimal requirements.

For samples and professional information about Biolac, write Borden's Prescription Products Division, 350 Madison Ave., New York City.

NO LACK IN BIOLAC

Borden's complete infant formula

★Biolac is prepared from whole milk, skim milk, lactose, vitamin B₁, concentrate of vitamins A and D from cod liver oil, and ferric citrate. It is evaporated, homogenized, and sterilized.



War Bulletins

UNITED STATES ARMY

Medical Department Officer Recruiting Board of Michigan

320 Federal Building
Detroit, Michigan

October 16, 1942

Michigan State Medical Society
Lansing, Michigan

Michigan has passed its quota by several hundred. However, the nation's quota is still lagging. The nation's quota for 1942, is 36,000 physicians including the 12,000 in service as of May, 1942. Because of the good Michigan response, this State will have relatively small quotas to fill next year, as far as can be ascertained at this time. It will probably be necessary to call one the age group 45 to 54 sometime next year, to fill the 1943 quotas. No official statement on that matter is available at present.

Recruiting activities are now being concentrated in 5 states: New York, Pennsylvania, Massachusetts, California, and Illinois; these states have the largest physician population.

Colonel Slevin, President of the Michigan Medical Recruiting Board stated, "that much of the credit for success of the recruitment effort in Michigan was due to the splendid coöperation manifested by the Michigan State Medical Society and its component county branches, as well as the work of the State Procurement and Assignment Chairman, P. R. Urmston, M.D., together with the various county Procurement and Assignment Committees." Colonel Slevin further stated "that in the States where this spirit of coöperation was lacking the results were poor."

"The impression at times has been gained by some physicians," said Colonel Slevin, "that Procurement and Assignment pushed the doctors to get commissions. Perhaps, this may be true, but still we feel that it was for the benefit of the Government and Organized Medicine. To the credit of American Medicine, it can now be said that all physicians' recruiting was voluntary. Michigan has less than 200 men who definitely do not wish to enter the service. This is a very low percentage indeed. The task of Procurement and Assignment Committee was a thankless one, but every committee did a patriotic job. I believe that the committee members were as fair as they could possibly be."

In closing this Board, on behalf of Colonel Priestly, Colonel Slevin, Captain Lukas and the enlisted personnel, we wish to thank each and every one who had a part in the splendid coöperation we received, and especially the Michigan State Medical Society through its officers.

PERRY V. WAGLEY,
Major, M.C.

Appreciation to Medical Men in Service

The Council of the Michigan State Medical Society, at its September 24 meeting in Grand Rapids, placed on its minutes an expression of sincere appreciation to members in the armed forces for their great sacrifice in joining the Army, the Navy, or the Marines. The Council extends to these members Godspeed and success and satisfaction in their new duties, with the hope that they may return soon to their own state, with victory about their shoulders.

Recruitment of Physicians for Army

The Office of the Surgeon General has authorized the following statement re medical recruiting:

I. Doctors who volunteered in 1940 and early in 1941 must be promoted, so that doctors who volunteer now should not expect initial appointments in the higher grades.

All appointments will be recommended in the grade of First Lieutenant with the following exceptions:

Captain. 1. Eligible applicants between the ages of 37 and 45 will be considered for appointment in the grade of Captain by reason of their age and general unclassified medical training and experience.

2. Below the age of 37 and *above* the age of 32, *consideration* for appointment in the grade of Captain will be given to applicants who meet all of the following minimum requirements:

- (a) Graduation from an approved medical school.
- (b) Internship of not less than one year, preferably of the rotating type.
- (c) Special training consisting of 3 years' residency in a recognized specialty.
- (d) An additional period of not less than 2 years of study and/or practice limited to the specialty.

3. Eligible applicants who previously held commissions in the grade of Captain in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) *may be considered* for appointment in that grade provided they have not passed the age of 45 years.

Major.—1. Eligible applicants between the ages of 37 and 55 *may be considered* for appointment under the following conditions:

- (a) Graduation from an approved school.
- (b) Internship of not less than one year, preferably of the rotating type.
- (c) Special training consisting of 3 years' residency in a recognized specialty.

(Continued on Page 910)

How effective is UNICORN'S HORN?

UNTIL SOMEONE OBTAINS A BONA FIDE SPECIMEN FOR CLINICAL TRIAL, WE SHALL NEVER KNOW



Thus the true value of adrenal cortex extract might never have been established had not adequate quantities of a potent material been made available for clinical trial. During the experimental period, when only small amounts of relatively impotent extracts were obtainable, opinions of the therapeutic value of the cortical hormones ran full gamut. Now, however, the efficacy of Sterile Solution Adrenal Cortex Extract (Upjohn) in the treatment of adrenal insufficiency is established, and other uses are under investigation.

STERILE SOLUTION ADRENAL CORTEX EXTRACT (UPJOHN) is available in 10 cc. rubber-capped vials

Upjohn

KALAMAZOO, MICHIGAN

Fine Pharmaceuticals Since 1886

(Continued from Page 908)

(d) An additional period of not less than 7 years of study and/or practice limited to the specialty.

(e) The existence of appropriate position vacancies.

(f) Additional training of a special nature of value to the military service, in lieu of the above.

2. Applicants previously commissioned as Majors in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) whose training and experience qualify them for appropriate assignments may be considered for appointment in the grade of Major provided they have not passed the age of 55.

Lieutenant Colonel and Colonel.—In view of the small number of assignment vacancies for individuals of such grade, and the large number of Reserve Officers of these grades who are being called to duty, such appointments will be limited. Wherever possible, promotion of qualified officers on duty will be utilized to fill the position vacancies.

II. Active recruitment must continue to keep pace with the needs of the armed forces. Doctors declared available by the Procurement and Assignment Service are now being directly recruited by the Medical Corps.

III. Young physicians are most needed. In many places they seem to be reluctant to enroll. The Surgeon General requests older physicians to urge enrolment of these younger men.

IV. The official way to volunteer is application on the regular War Department forms. No other method of volunteering is official.

V. Every effort is being made to assign men with special training to the work for which they are best fitted.

Biddle Lecture

When the present mobilization program started, there were 1,250 physicians in the Army. There are now about 22,000 and we expect 36,000 total by January 1, 1943.

In appointing doctors, an attempt has been made to give them a grade commensurate with their attainments in civil life. This is very difficult and has caused a certain amount of stagnation in promotion of those who had Reserve commissions and who were called early to active duty.

Young medical men are needed, as it takes youth to stand the hard work with troops.

Complaints are heard about the round peg in the square hole. There are many reasons why this cannot be avoided in some instances.

The State of Michigan has reason to be proud of its medical men, as they have come forward and large numbers are serving with the armed forces. Some other states have not done as well.

The question as to whether a doctor will get his practice back after the war has been a deterring factor in certain cases. The thing to do is win the war and worry about the practice later.

The fact that our goal is reached for this year does not mean that we will stop. The Army grows and with it the Medical Corps.

Physical standards have been lowered and many doctors who were declared disqualified six months or a year ago may now be eligible for "limited service." This means that they will be assigned to hospital or

dispensary duty and will not be placed on duty with tactical units.

(Notes from the lecture by Col. George F. Lull, Chief of Personnel Division, Surgeon General's office at Grand Rapids, September 23, 1942).

Fuel Oil Rationing

Illness, old age or infancy may make necessary auxiliary rationing of fuel oil; consumers may obtain such auxiliary rations by applying to the local rationing board, accompanying the application with a certificate from a licensed physician. In supplying such a certificate the physician is to give the date, the name and the address of the householder. Furthermore, he must certify the nature of the illness, whether acute or chronic, whether or not it is of the type requiring higher indoor temperature, the approximate temperature required and the approximate period for which the supplemental base heat is needed. The physician may at his discretion state the nature of the illness or may give additional information that will be helpful. The applicant himself files the certificate with the local rationing board. Furthermore, as a check, advisory committees are to be set up for each local rationing board. These advisory committees will include two licensed physicians and the county or local health officer. They will review cases in which certificates are questioned or in which a professional opinion is desired.

Thus comes to the medical profession another call for its special services in wartime. Civilian physicians will do their utmost, as usual, to aid in this work as another contribution to the war effort.

Lt. Colonel Sam F. Seeley, M.C., who was recently recalled from duty with the Procurement and Assignment Service, Washington, D. C., has been assigned as Executive Officer to the national known "Greenbriar" resort at White Sulphur Springs, W. Va., now a 2,000-bed Army Hospital.

All of Colonel Seeley's many friends in Michigan congratulate him and wish him the best of luck in his new assignment, one of the choicest in the Army.

Medical Officers.—Please keep the MSMS JOURNAL informed of any changes in your address, in order that the MSMS JOURNAL may be sent to you promptly. Write THE JOURNAL, 2020 Olds Tower, Lansing.

THE JOURNAL will welcome news items and personals from Michigan physicians in Service. Those on the home front are anxious to read of physicians' experiences in the war, which will be printed when the information conforms to Army and Navy censorship regulations.

The Medical Department Officer Recruiting Board was disbanded on October 17, having practically completed its work of aiding Michigan physicians in obtaining commissions in the Medical Corps of the Army. Lt. Colonel John G. Slevin has been transferred to Fort Custer as commanding officer of Station Hospital.

I like S-M-A*!

IN INFANT FEEDING ...IT SAVES MY TIME

- Directions on how to mix and feed S-M-A can be explained to the mother and nurse in two minutes.
- S-M-A is more easily digested by the normal infant because of the all-lactose carbohydrate and the unique S-M-A fat.
- With S-M-A nothing is left to chance. All the vitamin requirements, except ascorbic acid, together with additional iron are included in S-M-A in the proper balance, ready to feed.
- S-M-A fed infants compare favorably with breast-fed infants in growth and development.

Prescribe S-M-A!



*S-M-A, a trade mark of S.M.A. Corporation, for its brand of food especially prepared for infant feeding—derived from tuberculin-tested cow's milk, the fat of which is replaced by animal and vegetable fats, including biologically tested cod liver oil, with the addition of milk sugar and potassium chloride; altogether forming an antirachitic food. When diluted according to directions, it is essentially similar to human milk in percentages of protein, fat, carbohydrate and ash, in chemical constants of the fat and physical properties.

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Michigan Medical Service

At the annual meeting of the House of Delegates on September 22, 1942, the Michigan Medical Service program was reviewed. A résumé of actions taken is as follows:

- Resolution to set the income limits at \$1,200 for an individual subscriber and \$1,500 for a family subscriber was rejected after thorough discussion, by a vote of 68 to 28. The present income limits are \$2,000 for a single subscriber and \$2,500 for a family subscriber.
- Resolution restricting sale and operation of the plan to county areas subject to the approval of the local county medical society was also rejected.
- Resolution recommending the ten principles of the American Medical Association relative to medical service plans was adopted.
- Recommendation that one-half of the Directors of Michigan Medical Service be elected each year for a two year term, with no more than one-third elected from any one county, was referred to the members of the Corporation.

* * *

The annual meeting of the members of the Corporation of Michigan Medical Service followed the session of the House of Delegates. A résumé of the actions taken by the members is as follows:

- Elected to the Board of Directors:

Professional Representatives: R. L. Novy, M.D., Detroit; Robert Baker, M.D., Pontiac; Leon M. Bogart, M.D., Flint; Stanley W. Insley, M.D., Detroit; O. D. Stryker, M.D., Fremont; and W. B. Harm, M.D., Detroit.

Hospital Representatives: Robert Greve, Ann Arbor; Ralph Hueston, Flint.

Lay Representative: Dora H. Stockman, East Lansing.

- Motion that the Board of Directors of Michigan Medical Service be instructed that no certificates be issued to any individual who is a single man with an income of more than \$2,000 or a married man with an income of more than \$2,500 was not adopted.
- Motion that Michigan Medical Service be in fact

actually and completely divorced from Michigan Hospital Service at the earliest possible moment consistent with sound actuarial procedure was carried unanimously.

- Motion that the members of the Corporation instruct the Board of Directors of Michigan Medical Service to authorize the appointment, by the local county medical society, of a Board of Review—a committee to authorize rendering of office surgical services, to review reports of such services, and to serve in handling disputes between physicians and subscribers arising in that particular community, with power of appeal to the main office of Michigan Medical Service—was carried.

Since the 1941 meeting of the members of the Corporation, the enrollment has increased 125 per cent and more than \$1,500,000 has been paid out in benefits. There are many problems inherent in such a tremendous expansion, several of which are still unsolved. Probably the most important of these are the problems of better coöperation arrangements with physicians, a more complete medical service plan, and enrollment in rural areas.

More than 80 per cent of the doctors licensed to practice medicine in Michigan are now enrolled with Michigan Medical Service. This is evidence of the support given Michigan Medical Service by the medical profession in Michigan, but even greater coöperation on the part of each physician is necessary for improved professional guidance of the plan.

It is the consensus of most physicians that Michigan Medical Service must extend and expand its service to the low income group. At present, the majority of enrollment is in well populated industrial areas. The Board of Directors is now considering methods of making the service more easily available to persons in rural areas. There is also the fact that the income class which Michigan Medical Service is designed to serve requires greater protection than the Surgical Benefit Plan. During the ensuing year it is hoped that a plan offering medical coverage in addition to the surgical coverage can be worked out.

COMMITTEE PERSONNEL

(Continued from Page 896)

Committee on Scientific Work

L. Fernald Foster, M.D., <i>Chairman</i> ...	Bay City
R. H. Baker.....	Pontiac
Claud Behn.....	Detroit
Russell deAlvarez.....	Ann Arbor
R. H. Denham.....	Grand Rapids
J. Lewis Dill.....	Detroit
Wm. S. Jones.....	Menominee
Traian Leucutia.....	Detroit
J. J. McDermott.....	St. Joseph
Chas F. McKhann.....	Ann Arbor
Mark Osterlin.....	Traverse City
H. M. Pollard.....	Ann Arbor
Hazel Prentice.....	Kalamazoo
Roger S. Siddall.....	Detroit
C. J. Smyth.....	Eloise
Frank Stiles.....	Lansing
H. J. VanBelois.....	Grand Rapids
E. P. Wilbur.....	Kalamazoo
Nina Wilkerson.....	Sturgis
H. B. Zemmer.....	Lapeer

Beaumont Memorial Committee

F. A. Coller, M.D., <i>Chairman</i>	Ann Arbor
H. C. Mayne, M.D.....	Cheboygan
Allan McDonald, M.D.....	Detroit
Henry E. Perry, M.D.....	Newberry
Lawrence Reynolds, M.D.....	Detroit

Committee on Nurses Training Schools

E. A. Oakes, M.D., <i>Chairman</i>	Manistee
A. L. Arnold, Jr., M.D.....	Owosso
G. F. Fisher, M.D.....	Hastings
Edw. Meisel, M.D.....	Midland
A. E. Stickley, M.D.....	Coopersville
Don W. Thorup, M.D.....	Benton Harbor

Postgraduate Extension Committee

J. D. Bruce, M.D., <i>Chairman</i> , Ann Arbor	
E. I. Carr, M.D.....	Lansing
J. M. Robb, M.D.....	Detroit
R. H. Stevens.....	Detroit

Medical Preparedness

P. R. Urmston, M.D., <i>Chairman</i> ...	Bay City
F. G. Buesser, M.D.....	Detroit
Milton A. Darling, M.D.....	Detroit
L. Fernald Foster, M.D.....	Bay City
H. A. Furlong, Lt. Col., M.C.....	Lansing
C. D. Moll, M.D.....	Detroit
C. I. Owen, Major, M. C.....	Lansing
H. H. Riecker, M.D.....	Ann Arbor
J. G. Slevin, Lt. Col., M.C.....	Detroit

Professional Liaison Committee

A. F. Jennings, M.D., <i>Chairman</i> ...	Detroit
W. H. Boughner, M.D.....	Algonac
E. L. Chapman, M.D.....	Highland Park

Prelicensure Medical Education

Burton R. Corbus, M.D., <i>Chairman</i> ...	Grand Rapids
A. C. Furstenberg, M.D.....	Ann Arbor
C. R. Keyport.....	Grayling
J. Earl McIntyre, M.D.....	Lansing
Edgar H. Norris, M.D.....	Detroit

Highly Active **BACTERIOSTATIC AGENT**

Sulfathiazole exerts a prompt bacteriostatic effect upon a number of pathogenic organisms. A pronounced action is observed on the following:

**PNEUMOCOCCUS • STAPHYLOCOCCUS
GONOCOCCUS • MENINGOCOCCUS**

Remarkable clinical results have been consistently obtained in infectious conditions caused by these organisms. Complications which are commonly encountered in pneumonia, gonorrhea or meningitis are greatly reduced in frequency and severity.

The dosage should be adjusted to the nature of the disease, as well as to the age and condition of the patient. Write for dosage chart and booklet on Sulfathiazole-Winthrop.

Sulfathiazole-Winthrop is supplied in tablets of 0.5 Gm. (7.72 grains), bottles of 50, 100 and 500; also (primarily for children) in tablets of 0.25 Gm. (3.86 grains), bottles of 50, 100 and 500. Sterile powder is available in bottles of 5 Gm., $\frac{1}{4}$ lb. and 1 lb.



Specify **SULFATHIAZOLE** *Winthrop*



Winthrop **CHEMICAL COMPANY, INC.**

Pharmaceuticals of merit for the physician

NEW YORK, N. Y. WINDSOR, ONT.

CONVENTION ECHOES

A total of 1,746 persons registered at the 77th Annual Meeting of the Michigan State Medical Society in Grand Rapids, September, 1942. This total does not include members of the Woman's Auxiliary.

Doctors of Medicine.....	1,066
Guests	413
Scientific and Technical Exhibitors.....	267
GRAND TOTAL	1,746

Despite the fact that 1,300 Michigan physicians were in the armed forces, the 1942 figures compare most favorably with the 1941 registration of doctors of medicine which was 1,216, or only 150 more than this year!

* * *

Michigan newspapers gave 1022 inches in their news columns to the MSMS 77th Annual Meeting—the Postgraduate Conference on War Medicine, in Grand Rapids the week of September 20. Thus, a total of 9202 lines was devoted to the Conference. A number of these stories were first-page—and this despite the Solomon Islands, President Roosevelt's trip, and the crowning of Miss America in Atlantic City!

* * *

Despite the scarcity of rubber, more rubber stamps were used this year by physicians who roamed through the exhibits affixing their signatures to registration cards at the various booths!

* * *

Crowded were the demonstrations of the Kenny Method, made Wednesday and Thursday afternoons, September 23 and 24, in the scientific exhibit of the National Foundation for Infantile Paralysis. Don W. Gudakunst, M.D., and Sue Thompson, M.D., both former Michiganders who are now associated with the Foundation, were in charge of the demonstration.

* * *

Murray D. Van Wagoner, Governor of the State of Michigan, attended the 1942 Annual Meeting of the Michigan State Medical Society in Grand Rapids, and made a tour of the scientific and technical exhibits.

* * *

Bruce Publishing Company, 2642 University Avenue, Saint Paul, Minnesota, publishers of the MSMS JOURNAL, contributed 2,500 notebooks for use by registrants at the 1942 MSMS Annual Meeting in Grand Rapids. The Society wishes to thank Mr. J. R. Bruce, president of the Company, for the thoughtfulness and courtesy.

* * *

The sound-movie "Management of Venereal Disease," featured in the scientific exhibit of the MSMS Syphilis Control Committee and Michigan Department of Health, attracted very interested crowds at its daily showings.

* * *

Lost at the annual meeting: A brown felt Royal Stetson hat, with dealer's name: "Jimmy Lynch, Mil-

914

waukee," in the Black and Silver Ballroom, Civic Auditorium, September 23. Return to MSMS, 2020 Olds Tower, Lansing, so it may be forwarded to the owner.

Lost—The Michigan Tuberculosis Association asks that the transparency showing radioactive tubercle bacilli made by the Spencer Lens Company and loaned to the Association for show in its scientific exhibit at the Michigan State Medical Society Annual Meeting, Grand Rapids, September 23, 24, 25, 1942, be returned to the Michigan Tuberculosis Association, 403 Seymour, Lansing, Michigan. It was borrowed by an interested spectator.

* * *

What some of the guest-essayists and others wrote about the 1942 MSMS Annual Meeting (unsolicited):

Harry Carl Guess, M.D., Buffalo, N. Y.: "Allow me to thank you for the hospitality which I received in Grand Rapids. I certainly enjoyed my stay at the MSMS meeting. Met some real fellows and had a taste of western hospitality."

* * *

Clifford G. Grulee, M.D., Evanston, Illinois: "I certainly had a good time in Grand Rapids and thank you very much for your many courtesies."

* * *

Russell D. Herrold, M.D., Chicago: "It was indeed a pleasure to appear before your Society and I deeply appreciate the hospitality in general, particularly that of Wm. J. Butler, M.D., who was designated as my official host."

* * *

Harvey B. Matthew, M.D., Brooklyn, N. Y.: "I extend my thanks through you to the Michigan State Medical Society for the very pleasant room and the note of welcome, as well as for the basket of delicious fruit—all of which served to demonstrate the well-known hospitality of the 'Michiganders' in general, and her doctors in particular."

* * *

Irving H. Page, M.D., Indianapolis: "Thanks so much for a splendid time."

* * *

A. H. Parmelee, M.D., Oak Park, Ill.: "I enjoyed my visit to Grand Rapids and the pleasure of meeting so many of your fine group. A good many of the men were old acquaintances of mine but many were new to me.

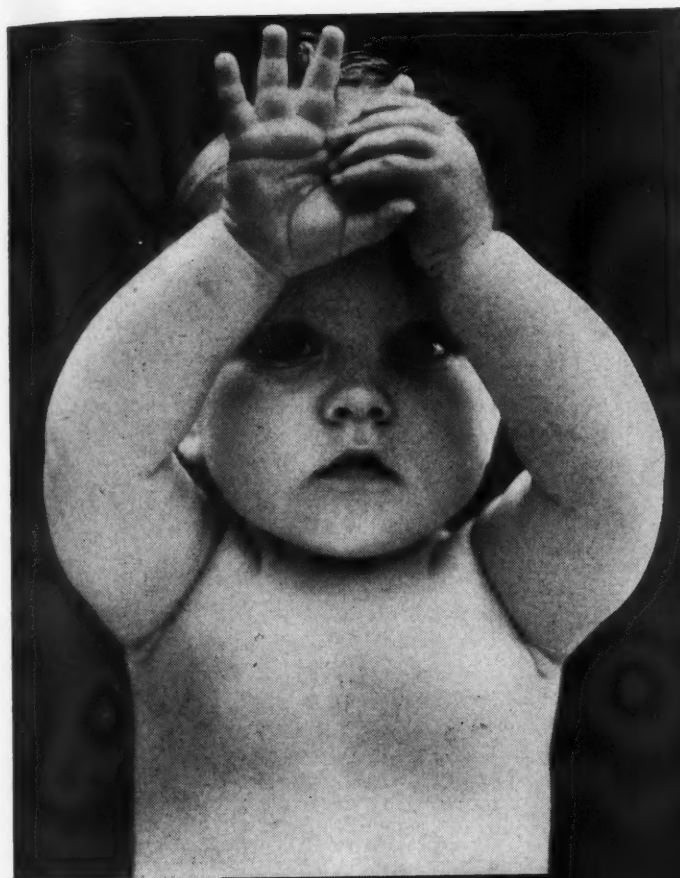
"I want to compliment you on the very efficient way in which the meeting was conducted. My whole experience was extremely satisfactory, and I hope that my contribution was of some little value."

* * *

Lieutenant Colonel Charles B. Puestow, M.C., Walter Reed Hospital, Washington, D.C. (formerly of Chicago): "It was a pleasure to attend and appear on the program of the annual meeting of the Michigan State

(Continued on Page 916)

JOUR. M.S.M.S.



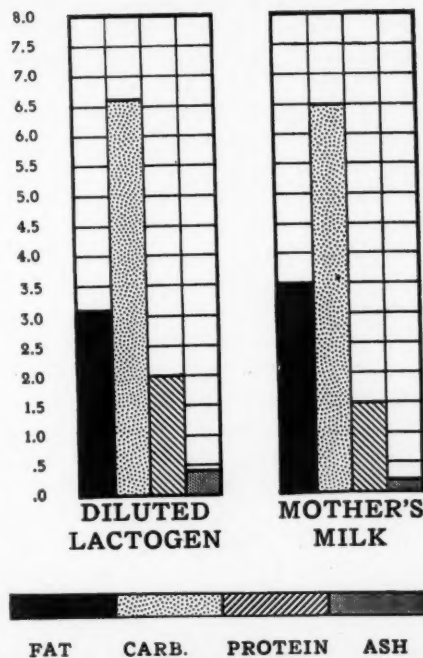
LACTOGEN
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women's milk in the
proportion of
food substances

THE cows' milk used for Lactogen is scientifically modified for infant feeding. This modification is effected by the addition of milk fat and milk sugar in definite proportions. When Lactogen is properly diluted with water it results in a formula containing the food substances—fat, carbohydrate, protein, and ash—in approximately the same proportion as they exist in women's milk.

No advertising or feeding directions, except to physicians. For free samples and literature, send your professional blank to "Lactogen Dept., Nestlé's Milk Products, Inc., 155 East 44th St., New York, N. Y.

"My own belief is, as already stated, that the average well baby thrives best on artificial foods in which the relations of the fat, sugar, and protein in the mixture are similar to those in human milk."

*John Lovett Morse, A.M., M.D.
Clinical Pediatrics, p. 156.*



NESTLÉ'S MILK PRODUCTS, INC.

155 EAST 44TH ST., NEW YORK, N. Y.

CONVENTION ECHOES

(Continued from Page 914)

Medical Society. I have heard many favorable comments about the meeting and believe it certainly surpassed in caliber most state medical meetings."

* * *

Edw. H. Skinner, M.D., Kansas City, Mo.: "Thank you very much, indeed, for all the courtesies that were offered to me through the officers of the Michigan State Medical Society. An invitation from your State Society represents a distinct honor. Furthermore, the hospitality at your Grand Rapids meeting was excellent and I thoroughly enjoyed every moment of my stay. Congratulations upon your methods of handling a state medical society."

* * *

Meyer Wiener, M.D., Coronado, California (Formerly St. Louis, Mo.): "Please convey to your president and to your Society my deep appreciation for the extreme hospitality extended to me in so many ways during my visit to Grand Rapids. I have never enjoyed a meeting more."

* * *

Phillip F. Williams, M.D., Philadelphia: "Just a note to tell you that I thoroughly enjoyed my trip to Grand Rapids. It was a little difficult getting there and getting home, but the reception given my two papers and the many courtesies shown me made my short stay very pleasant. I was very much impressed with the program and wish I could have heard all the papers."

* * *

Paul M. Wood, M.D., New York City: "I wish to express to you my sincere appreciation for the opportunity to appear on the program of the Michigan State Medical Society. I had a warm welcome, found a delicious plate of fruit in my room when I arrived, was taken around Grand Rapids by one of our anesthetist members of the Michigan Society, spent several hours in seeing some of the hospitals and the technicians employed, and enjoyed very much the opportunity to be with the anesthetists in their regular meeting at the hotel on Thursday evening."

"Dr. Van Benois was a most gracious 'ubiquitous host,' and Joe DePress and Mary Lou Byrd were evidently also assigned to look after my needs, which was done in a really royal manner."

* * *

John B. Youmans, M.D., Nashville, Tennessee: "I wish to tell you that I enjoyed my visit in Michigan and the meeting of the Michigan State Medical Society very greatly. Your hospitality left nothing to be desired, and I was particularly glad of the opportunity to see my old friends and former students. I wish again to thank the Society for their kindness in extending to me the invitation."

* * *

Colonel Henry R. Carstens, M.C., Camp McCoy, Wis.: "The whole meeting went off better than ever. I was extremely glad to see so many of our members in uniform present. I have heard many remarks about the meeting being unusually successful."

* * *

Myron G. Becker, M.D., Edmore, Michigan, General

Practice Discussion Conference Leader: "To begin with, I wish to compliment whoever was responsible for choosing the guest conferees for the Discussion Conference on General Practice on September 24. Both Dr. Sevringhaus and Dr. Guess had subjects which were of interest to general practitioners, as was demonstrated by the number of questions asked and discussions that followed. In all, I think that a great deal of useful information was imparted."

* * *

Frederick A. Collier, M.D., Ann Arbor, Surgical Discussion Conference Leader: "May I congratulate you and your associates on carrying through what seems to have been one of the very best meetings the State Society has ever had. The Surgical Discussion Conference was a success, and the physical arrangements provided by the Society and the hotel were perfect."

* * *

Parker Heath, M.D., Detroit, Ophthalmological Discussion Conference Leader: "The Discussion Conference can be looked upon as a success. It impresses me that the idea could be enlarged more each year, and it further seems to me that the men favor these Conferences more than they do the set, formal papers."

"I would continue to advertise them freely, as in the past, and would emphasize the instructional character of the conferences, as these can develop into a successful postgraduate level type of instruction."

* * *

Cyrus C. Sturgis, M.D., Ann Arbor, Michigan, Medical Discussion Conference Leader: "I think the Conference was a great success because it was well attended, as I estimate that approximately 200 persons were in the auditorium and they seemed to be interested and very attentive. I think for the second year these conferences have proved themselves to be highly advisable and very much appreciated exercises, and I would recommend their continuance."

* * *

Lt. Colonel James M. Winfield, M.C.: "I wish to express my appreciation of the truly great pleasure which I have enjoyed at meetings of the Michigan State Medical Society. I sincerely hope that the meetings will be carried on in a forward looking and successful manner, throughout the war period, and I wish you all the very best of luck."

* * *

Major R. J. Noer, M.C.: "I have appreciated the opportunity of participating in your MSMS meetings in the past and I trust that I may again enjoy the intellectual stimulus and pleasant associations with the activities of the Society."

* * *

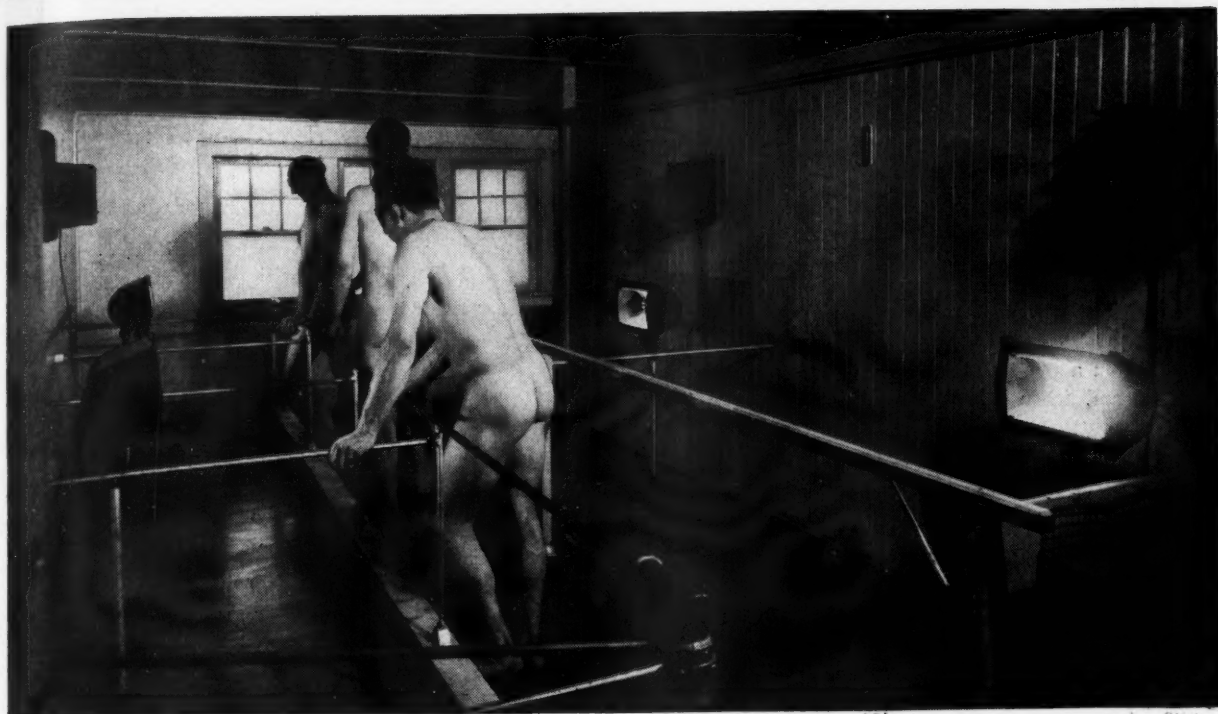
H. J. Cowell, Lea & Febiger, Philadelphia: "Congratulations on the best state convention of the 1942 convention year, and every good wish."

* * *

Alexander M. Campbell, M.D., Grand Rapids, Michigan: "It once more gives me pleasure to compliment and congratulate you on the success of the State Meeting in Grand Rapids. I think it was one of the best

(Continued on Page 918)

A TIMELY SUGGESTION:



Group U-V Irradiation of Workers on the War Production Line

● Now that the Nation looks to the Medical profession for every possible help toward keeping our war workers physically fit and on the production line, routine ultraviolet irradiation would seem a timely suggestion.

As a supplement to other hygienic measures in industrial medicine, general body irradiation with mild doses of ultraviolet two or three times a week has proved highly beneficial to miners and factory workers—tending to build up resistance against respiratory diseases which exact such a heavy toll in man-hours lost to production.

Pictured above is a typical installation for this purpose. Paired G-E Hot Mercury Quartz Lamps are placed on each side of a passageway between

shower-room and locker room. A moving hand-rail serves to correctly time the interval of exposure for each individual passing between the lamps. Requires just a few minutes, routinely, two or three times a week.

What could more effectively offset the sparse sunshine of winter months, and the pent-up existence of the great majority of war workers?

Further information, including a blue-print giving details for such an installation, will be sent on request. Ask for Pub. No. C111.

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NOVEMBER, 1942

Say you saw it in the Journal of the Michigan State Medical Society

917

CONVENTION ECHOES

(Continued from Page 916)

meetings I have ever attended, and I know that the amount of work you did and the detail which you covered must have been tremendous."

* * *

W. T. Coulter, Vice President of Bruce Publishing Company, Saint Paul: "Your 1942 meeting was a brilliant success. A large part of it is due to very fine organization work."

* * *

J. Howell Healy, Vice President of McNeil Laboratories, Philadelphia: "I think, as Harold J. Cowell (President of the Medical Exhibitors Association) expressed, that the Michigan State Medical Meeting, from the exhibitors' standpoint, is just about tops. I hope we will be in a position to be with your fine organization again and again in the future."

* * *

Lewis Lang, Smith, Kline & French Laboratories: "This meeting has always been known as 'the best' of all state meetings. This year proved no exception. It is recommended that we attend the Michigan meeting under all circumstances."

* * *

E. R. Loveland, Executive Secretary, American College of Physicians, Philadelphia: "Your meeting appears to have been one of the most successful medical meetings held this autumn."

"I believe you are entirely right in continuing your state meetings. As never before, I think medical unity through organization should be maintained. Neither

physicians, nor anyone else, can stand still. They either progress or retrogress; without meetings your Society will not progress nor will your members."

* * *

T. A. Phillips of J. B. Lippincott Company, Philadelphia: "The Michigan State meeting was successful, as it always has been."

* * *

R. G. Sickels, Advertising Manager, Parke, Davis & Company, Detroit: "This was my first medical meeting and I found it very interesting and decidedly worth while. It gave evidence of being 'well run'."

* * *

HALF A CENTURY AGO

(Continued from Page 906)

following the use of opiates for the relief of pain during the first twenty-four or thirty-six hours succeeding the operation. In one or two instances, obstinate paralysis of the bowels ensued. More recently it has been dispensed with entirely, and dependence is placed upon hot applications and hot vaginal douches, for the relief of the pain. The patients are allowed to lie upon either side at will, and this simple procedure goes far towards diminishing the pain.

They are permitted to sit up during the third, but not to walk until the fourth week. They are also required to wear an abdominal bandage for six months, precautions seemingly necessary on account of the possible occurrence of hernia.



IN THE HOSPITALITY BOOTH AT THE 1942 MSMS MEETING

(Left to right) P. L. Ledwidge, M.D., Detroit, Speaker, House of Delegates; H. H. Cummings, M.D., Ann Arbor, President; Col. Henry R. Carstens, M.C., Retiring President; L. Fernald Foster, M.D., Bay City, Secretary.

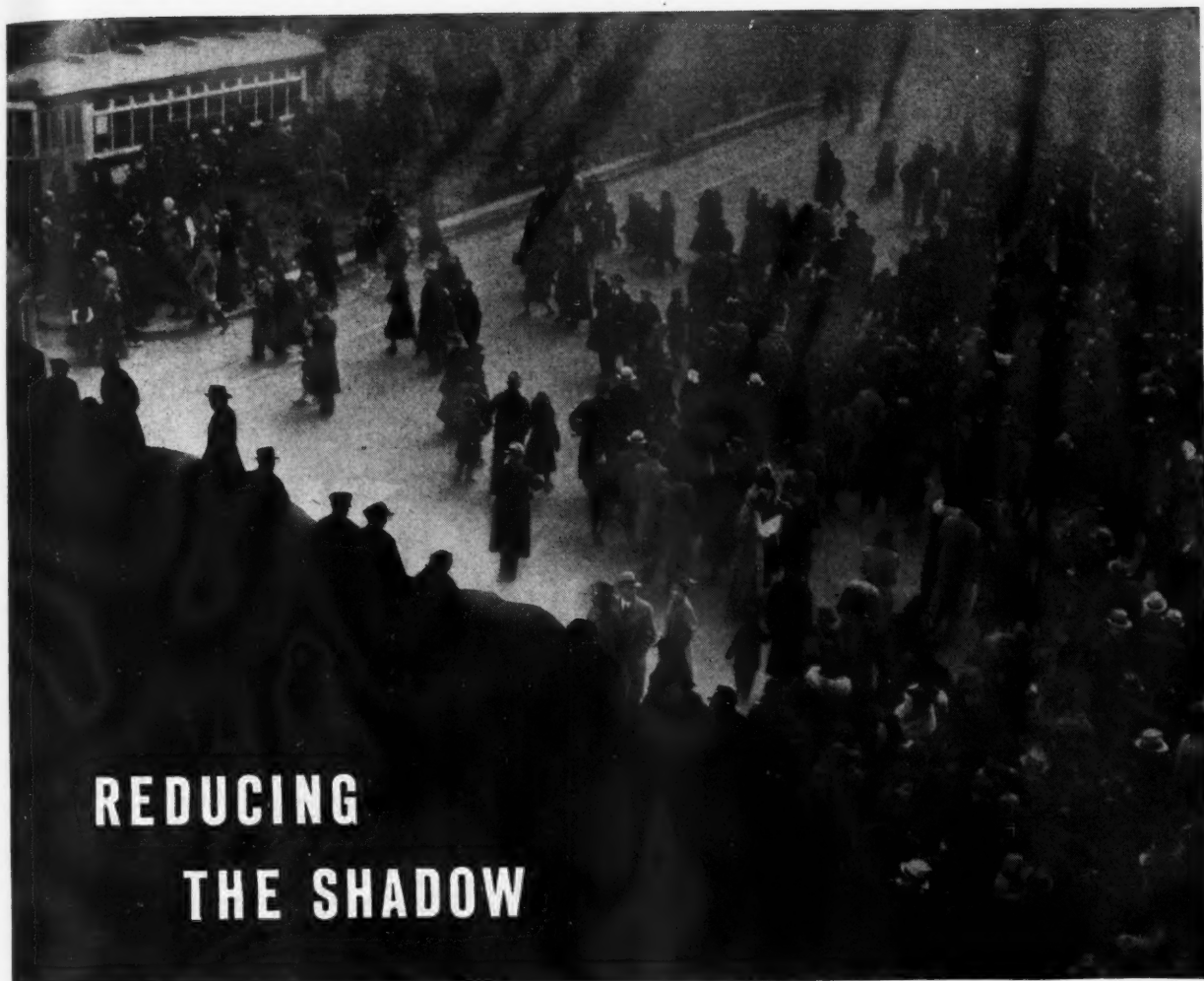
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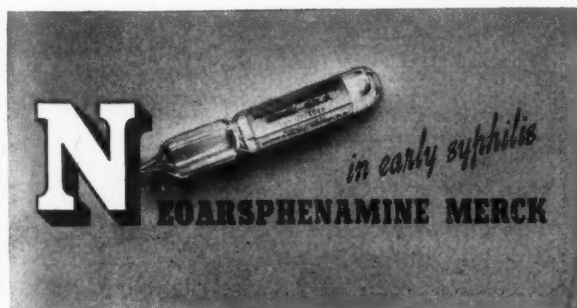
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